1989
ALBERTA HOUSE COST COMPARISON STUDY

Executive Summary

Single Detached Dwelling
24 Unit
Walk-up Apartment

Alberta
MUNICIPAL AFFAIRS
Housing Division

1989 ALBERTA HOUSE COST COMPARISON STUDY

EXECUTIVE SUMMARY

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TABLE OF CONTENTS

Page No.

PREFACE 1

1.0 INTRODUCTION 2
1.1 Objectives 3
1.2 Scope of Work 3
1.3 Approach 5
1.4 Findings 7

2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING 9
SD.1 Total Building Costs 10
SD.2 Comparative Costs Ratios 11
SD.3 Comparative Costs Table 1988-1989 12
SD.4 Comparative Costs Bar Chart 1988-1989 13
SD.5 Comparative Total Building Costs 1981-1989 (nom. dollars) 14
SD.6 Comparative Total Building Costs Graphs 1981-1989 (nom. dollars) 15
SD.7 Comparative Total Building Costs 1981-1989 (infl. adj.) 17
SD.8 Comparative Total Building Costs Graphs 1981-1989 (infl. adj.) 18
SD.9 Comparative Costs per Square Foot of Gross Floor Area 1981-1989 (nom. dollars) 20
SD.10 Comparative Costs per Square Foot of Gross Floor Area 1981-1989 (infl. adj.) 21
SD.11 Trade Division Cost Summaries 22

3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT 24
WA.1 Total Building Costs 25
WA.2 Comparative Costs Ratios 26
WA.3 Comparative Costs Tables 1988-1989 27
WA.4 Comparative Costs Bar Chart 1988-1989 28
WA.5 Comparative Total Building Costs 1981-1989 (nom. dollars) 29
WA.6 Comparative Total Building Costs Graphs 1981-1989 (nom. dollars) 30
WA.7 Comparative Costs per Apartment Unit 1981-1989 (nom. dollars) 32
WA.8 Comparative Costs per Apartment Unit Graphs 1981-1989 (nom. dollars) 33
WA.9 Comparative Costs per Apartment Unit 1981-1989 (infl. adj.) 35
WA.10 Comparative Costs per Apartment Unit Graphs 1981-1989 (infl. adj.) 36
WA.11 Comparative Costs per Square Foot of Gross Floor Area 1981-1989 (nom. dollars) 38
WA.12 Comparative Costs per Square Foot of Gross Floor Area 1981-1989 (infl. adj.) 39
WA.13 Trade Division Cost Summaries 40

APPENDIX
A) Reduced Drawings: Single-Detached Dwelling
B) Reduced Drawings: Walk-Up Apartment

PREFACE

The main purpose of the 1989 Alberta House Cost Comparison Study was to provide estimates of the hard construction costs of a prototypical single-detached dwelling and a 24 unit walk-up apartment in ten urban centres in this Province.

The study also compared 1989 residential construction costs with those of previous years in the selected urban centres. Most emphasis was given to a comparison of 1989 with 1988 costs and the study included an analysis of these differences.

The 1989 study was carried out by Helyar & Associates and is documented in three reports:

1989 Alberta House Cost Comparison Study : Executive Summary
1989 Alberta House Cost Comparison Study : Single-Detached Dwelling
1989 Alberta House Cost Comparison Study : Walk-Up Apartment

Additional copies of any of these reports can be ordered from :

ALBERTA MUNICIPAL AFFAIRS
Housing Division
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1.0 INTRODUCTION

1.0 INTRODUCTION

1.1 Objectives

The objectives of the 1989 Alberta House Cost Comparison Study were:

1. To determine 1989 hard residential construction costs in selected urban centres in Alberta.
2. To determine reasons for differences in residential construction costs in the selected centres.
3. To carry out detailed comparisons of 1989 residential construction costs with 1988 residential construction costs in the selected centres.
4. To determine and comment on residential construction cost trends over the last nine years in the selected centres.

1.2 Scope of Work

The 1989 Alberta House Cost Comparison Study examined the construction costs of a typical single-detached dwelling and a 24 unit walk-up apartment building.

The study has been documented in three reports : an Executive Summary, a report on a typical single-detached dwelling and a report on a walk-up apartment. This report is the Executive Summary.

The study examined building construction costs in the following centres:

1. Edmonton
2. Calgary
3. Red Deer
4. Fort McMurray
5. Grande Prairie
6. Hinton
7. Lethbridge
8. Medicine Hat
9. Lloydminster
10. Peace River

1.0 INTRODUCTION

1.2 Scope of Work (continued)

The cost analysis of both the single-detached dwelling and the walk-up apartment examined the building construction cost differences between each of the centres and identified the reasons for those differences with reference to such factors as :

a) material costs,
b) labour costs,
c) building features and inclusions,
d) construction specifications and standards and
e) other factors as appropriate.

The cost estimates of the single-detached dwelling for each centre include all structural, finishing, mechanical and electrical work as shown on the drawings and included in the specifications and also include allowances for site overhead. The cost estimates exclude the following items :

a) cost of land and site clearance,
b) site servicing costs,
c) site development costs,
d) design fees and expenses,
e) legal fees and expenses,
f) marketing and real estate financing costs,
g) appliances (fridge and stove) and
h) general contractors' overhead and profit.

1.0 INTRODUCTION

1.2 Scope of Work (continued)

The cost estimates of the walk-up apartment for each centre include all structural, finishing, mechanical and electrical work as shown on the drawings and included in the specifications and also include allowances for site overhead and contractors' overhead and profit. The cost estimates exclude the following items:

a) cost of land and site clearance,
b) site servicing costs,
c) site development costs,
d) design fees and expenses,
e) legal fees and expenses and
f) marketing and real estate financing costs.

1.3 Approach

The building construction costs are detailed in the report under the headings of labour and material/equipment costs. Labour rates used in the report are either those established by the trade union concerned, or by the market where trade union rates do not apply. In most cases, a realistic assessment of labour rates has been established by examining the circumstances of the particular sub-trade within the building industry. Material prices have been evaluated from building materials suppliers' lists. Average discounts are applied in order to establish a realistic market price for the materials to contractors.

1.0 INTRODUCTION

1.3 Approach (continued)

Prior to 1988, the single-detached dwelling studied had been a bungalow of 100m2 (1,076 S.F.). In 1988, this was updated to a four level split dwelling of 151m2 (1,625 S.F.) finished on three levels and complete with attached double garage to better represent current housing construction trends.

Previous years costs were revised to reflect this change and to maintain the trend of previous years studies.

The cost data are assembled by sub-trade and presented in 21 trade categories for the single-detached dwelling plus a category for site overhead and 23 trade categories for the walk-up apartment. Site overhead and general contractor's office overhead and profit are shown separately for the walk-up apartment to indicate the site costs. The sub-trade operations are combined within each trade category in order to reflect current estimating practice within the industry.

A computer program was developed in order to collate and present the cost data which were assembled for the ten centres. The quantities and trade descriptions were initially established for the prototypical house and apartment building. The cost data applicable to the relevant quantities and trade descriptions for each centre were then processed by computer.

The cost effects of market forces and building industry conditions are addressed in the "Findings" section of this report.

1.0 INTRODUCTION

1.4 Findings

Alberta's economy has maintained a modest rate of growth during 1989. There has been an increased demand for housing in certain centres due to the influx of people from other Provinces and the unemployment rate was down in comparison with the previous year. Province-wide, there has been an increase in housing starts indicating a general optimism for an improving economy. Activity in the oil business has been very poor but natural gas, timber and pulp and paper sectors continue to pick up and major impacts from proposed projects will be realised over the next few years. Most areas of the Province have seen upward movement of housing prices although in smaller communities, this was to a lesser degree. Lot prices are up in most of the centres studied due to the lack of lower priced lots.

Costs for the prototypical single-detached house have increased by an average of 5.1% province-wide. The greatest increase was 6.9% in Edmonton and the lowest was 3.2% in Fort McMurray.

Apartment construction activity, which was greater than in previous years, was generally confined to the Edmonton - Calgary corridor with lesser activity in Lethbridge and Medicine Hat.

With apartment vacancy rates dropping and the rental market improving in 1989, costs for apartment construction increased in all centres by an average of 5.9%. The greatest increase was 7.7% in Red Deer and the smallest increase was 3.2% in Fort McMurray.

The graphic presentation of construction costs of the single-detached dwelling in Table SD.6 indicates that construction costs in all centres have moved above 1981 nominal dollars (from an average 1981 cost of $ 67,692 to an average 1989 cost of $ 81,920 or 21.0% more). However, expressed in terms of inflation adjusted, real 1989 dollars, as shown in table SD.8, costs are still 15.6% below the 1981 average of $ 97,058 at $ 81,920.

1.0 INTRODUCTION

1.4 Findings (continued)

The graphic presentation of apartment construction costs in Table WA.8 indicates that average costs are higher than 1981 costs when expressed in nominal dollars (from $ 31,529 in 1981 to $ 34,498 in 1989 or 9.4% more). Expressed in inflation adjusted, real 1989 dollars, as shown in table WA.10, the total average costs are 23.7% less than the 1981 costs, from $ 45,208 in 1981 to $ 34,498 in 1989.

Increases in labour costs for both single-detached dwellings and for apartment construction were greatest in Edmonton and in Red Deer due to shortages of skilled labour in these centres. Other centres experienced some skilled labour shortages, but to a much lesser degree.

Material prices for the single-detached dwelling and the walk-up apartment building have increased marginally in all centres. Material price increases varied according to the type of material and centre. One of the largest increases was on manufactured boarding which increased between 15% and 20%. Timber generally increased between 5% and 10%. The increases in timber and manufactured boarding prices can be attributed to bouyant markets. These increases were lowest in Fort McMurray due to lack of demand and in Grande Prairie, Hinton and Peace River because of their proximity to the source of supply. While there has been no increase in concrete prices anywhere, they continue to vary considerably from centre to centre, due to demand, location and availability of aggregates and cement. Drywall and insulation prices fluctuated but have stayed in the same range. In most centres the majority of price increases were passed on to consumers; in previous years, builders have absorbed some increases to remain competitive in the marketplace.

No significant changes were observed as a result of building practice changes or changes in standard materials used by the majority of builders. However, it should be noted that there is a trend away from basic appliances in apartments. In this report, the refrigerator has been upgraded from a manual defrost .37 m3 (13 cu. ft.) model to a frost free .42 m3 (15 cu. ft.) model.

2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

TABLE SD. 1 : Total Building Costs

ITEM	EDMONTON		CALGARY		RED DEER		FORT McMURRAY		GRANDE PRAIRIE		HINTON		LETHBRIDGE		MEDICINE HAT		LLOYDMINSTER		PEACE RIVER	
ELEMENT	TOTAL $	%	TOTAL $	%	TOTAL $	%	TOTAL $	%	TOTAL $	%	TOTAL $	%	TOTAL $	%	TOTAL $	%	TOTAL $	%	TOTAL $	%
Labour	22,264	29.1	23,993	29.6	23,826	29.5	25,307	28.8	24,131	28.5	24,865	30.1	22,550	28.1	22,762	28.1	20,876	26.4	24,604	28.8
Material	54,318	70.9	57,084	70.4	56,984	70.5	62,589	71.2	60,402	71.5	57,816	69.9	57,777	71.9	58,184	71.9	58,096	73.6	60,774	71.2
Total 1989	76,582	100.0	81,077	100.0	80,810	100.0	87,896	100.0	84,533	100.0	82,681	100.0	80,327	100.0	80,946	100.0	78,972	100.0	85,378	100.0
Cost per m2	$507.17		$536.93		$535.17		$582.09		$559.82		$547.56		$531.97		$536.07		$522.99		$565.42	
Cost per SF	$47.12		$49.88		$49.72		$54.08		$52.01		$50.87		$49.42		$49.80		$48.59		$52.53	
Cost per SF 1988	$44.09		$47.28		$46.61		$52.38		$49.87		$48.32		$46.78		$46.90		$47.01		$50.50	
Total 1988	$71,666		$76,851		$75,754		$85,137		$81,050		$78,542		$76,031		$76,232		$76,401		$82,080	
Changes From 1988	6.9%		5.5%		6.7%		3.2%		4.3%		5.3%		5.7%		6.2%		3.4%		4.0%	

Note : Several total figures may appear in this report as not being added correctly. This is due to the rounding effect in the calculations of the detail costing for each centre.

2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

TABLE SD. 2 : Comparative Costs Ratios *

LOCATION	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	HINTON	LETHBRIDGE	MEDICINE HAT	LLOYD-MINSTER	PEACE RIVER
EDMONTON	1.00	1.06	1.06	1.15	1.10	1.08	1.05	1.06	1.03	1.11
CALGARY	0.94	1.00	1.00	1.08	1.04	1.02	0.99	1.00	0.97	1.05
RED DEER	0.95	1.00	1.00	1.09	1.05	1.02	0.99	1.00	0.98	1.06
FORT McMURRAY	0.87	0.92	0.92	1.00	0.96	0.94	0.91	0.92	0.90	0.97
GRANDE PRAIRIE	0.91	0.96	0.96	1.04	1.00	0.98	0.95	0.96	0.93	1.01
HINTON	0.93	0.98	0.98	1.06	1.03	1.00	0.97	0.98	0.96	1.03
LETHBRIDGE	0.95	1.01	1.01	1.09	1.05	1.03	1.00	1.01	0.98	1.06
MEDICINE HAT	0.95	1.00	1.00	1.09	1.04	1.02	0.99	1.00	0.98	1.05
LLOYD-MINSTER	0.97	1.03	1.02	1.11	1.07	1.05	1.02	1.02	1.00	1.08
PEACE RIVER	0.90	0.95	0.95	1.03	0.99	0.97	0.94	0.95	0.92	1.00

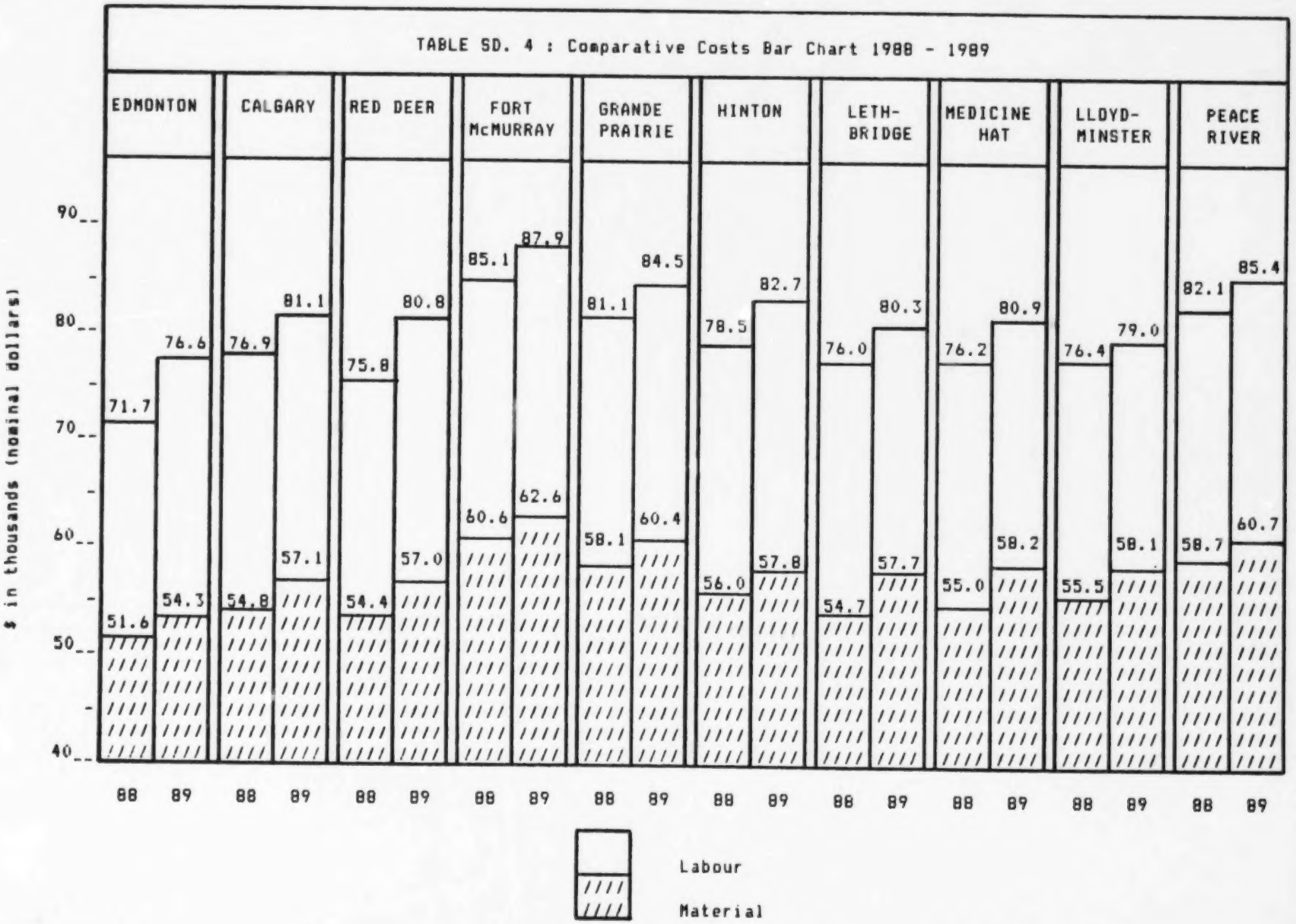
* Entries refer to the ratio of the price for a city in the top row of the table divided by a price for the city listed in the column. For example, Red Deer costs are 1.06 times Edmonton costs.

2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

TABLE SD. 3 : Comparative Costs Table 1988 - 1989

LOCATION	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	HINTON	LETHBRIDGE	MEDICINE HAT	LLOYD-MINSTER	PEACE RIVER
Labour Cost										
1989	$22,264	$23,993	$23,826	$25,307	$24,131	$24,865	$22,550	$22,762	$20,876	$24,604
1988	$20,063	$22,089	$21,306	$24,554	$22,973	$22,587	$21,291	$21,187	$20,867	$23,427
Difference	2201	1904	2520	753	1158	2278	1259	1575	9	1177
% Difference	11.0%	8.6%	11.8%	3.1%	5.0%	10.1%	5.9%	7.4%	0.0%	5.0%
Mat'l Cost										
1989	$54,318	$57,084	$56,984	$62,589	$60,402	$57,816	$57,777	$58,184	$58,096	$60,774
1988	$51,603	$54,762	$54,448	$60,583	$58,077	$55,955	$54,740	$55,045	$55,534	$58,653
Difference	2715	2322	2536	2006	2325	1861	3037	3139	2562	2121
% Difference	5.3%	4.2%	4.7%	3.3%	4.0%	3.3%	5.5%	5.7%	4.6%	3.6%
Total Cost										
1989	$76,582	$81,077	$80,810	$87,896	$84,533	$82,681	$80,327	$80,946	$78,972	$85,378
1988	$71,666	$76,851	$75,754	$85,137	$81,050	$78,542	$76,031	$76,232	$76,401	$82,080
Difference	4916	4226	5056	2759	3483	4139	4296	4714	2571	3298
% Difference	6.9%	5.5%	6.7%	3.2%	4.3%	5.3%	5.7%	6.2%	3.4%	4.0%

2.0 SUMMARY OF FINDINGS FOR THE SINGLE - DETACHED DWELLING



2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

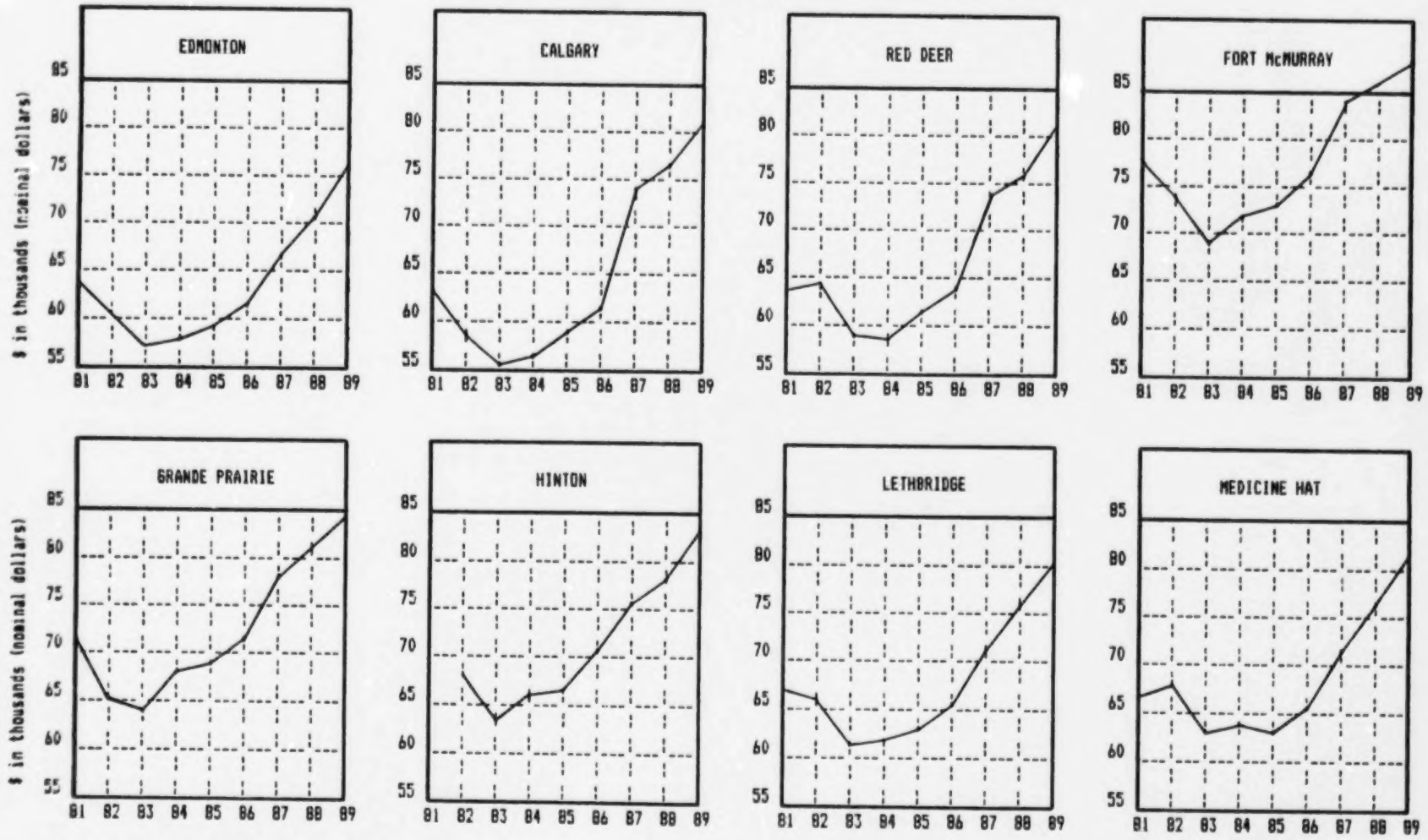
TABLE SD. 5 : Comparative Total Building Costs 1981 -1989 (nominal dollars)

YEAR	AVERAGE	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	* HINTON	LETHBRIDGE	MEDICINE HAT	** LLOYD-MINSTER	*** PEACE RIVER
1981	$67,692	$63,888	$63,336	$64,249	$77,357	$71,449	-	$67,057	$66,506	-	-
1982	$65,632	$60,374	$59,030	$64,697	$74,016	$65,145	$67,935	$66,489	$67,367	-	-
1983	$61,713	$57,170	$55,930	$59,116	$68,848	$64,732	$63,491	$61,493	$62,923	-	-
1984	$63,646	$57,256	$56,877	$58,496	$72,242	$68,194	$66,316	$62,010	$63,629	$67,798	-
1985	$64,852	$59,633	$59,754	$61,407	$72,913	$68,469	$66,661	$63,181	$63,250	$68,400	-
1986	$67,405	$62,079	$61,803	$63,733	$76,445	$71,932	$70,209	$65,231	$65,524	$69,692	-
1987	$74,644	$67,421	$74,588	$73,369	$84,110	$77,854	$75,871	$71,516	$72,150	$74,913	-
1988	$77,974	$71,666	$76,851	$75,754	$85,137	$81,050	$78,542	$76,031	$76,232	$76,401	$82,080
1989	$81,920	$76,582	$81,077	$80,810	$87,896	$84,533	$82,681	$80,327	$80,946	$78,972	$85,378

Notes : * Hinton was not included in the 1981 study
** Lloydminster was not included in the 1981 through 1983 studies
*** Peace River was not included in the 1981 through 1987 studies
>>> Costs for years prior to 1988 have been adjusted to apply to the split-level model used in the 1988 study instead of the bungalow used in previous years.

2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

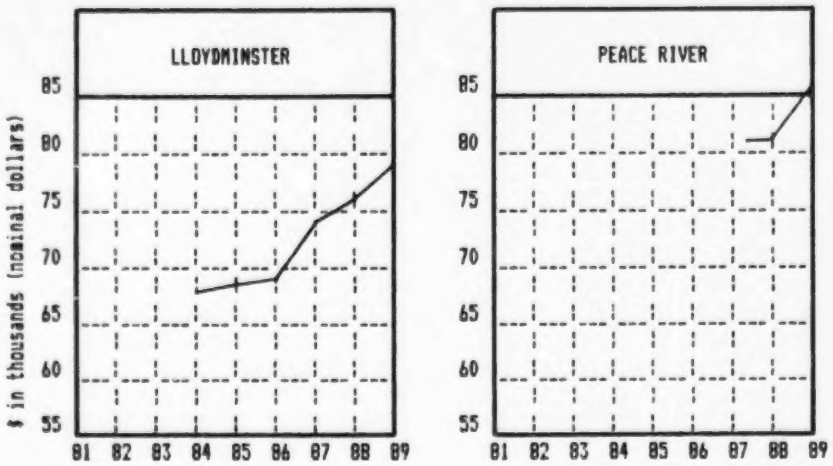
TABLE SD. 6 : Comparative Total Costs Graphs 1981 -1989 (nominal dollars)



Note: Costs for years prior to 1988 have been adjusted to apply to the split-level model used in the 1988 study instead of the bungalow used in previous years.

2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

TABLE SD. 6 : Comparative Total Costs Graphs 1981 -1989 (nominal dollars) (cont'd)



2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

TABLE SD. 7 : Comparative Total Building Costs 1981 -1989 (inflation adjusted dollars) *

YEAR	AVERAGE	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	** HINTON	LETHBRIDGE	MEDICINE HAT	*** LLOYD-MINSTER	**** PEACE RIVER
1981	$97,058	$91,520	$90,902	$92,125	$110,815	$102,352	-	$96,243	$95,452	-	-
1982	$85,121	$78,237	$76,642	$83,919	$95,917	$84,421	$88,036	$86,326	$87,466	-	-
1983	$74,195	$68,678	$67,316	$71,084	$82,706	$77,762	$76,271	$74,012	$75,733	-	-
1984	$76,512	$68,782	$68,456	$70,338	$86,784	$81,921	$79,665	$74,633	$76,583	$81,445	-
1985	$75,847	$69,694	$69,968	$71,836	$85,214	$80,021	$77,907	$73,981	$74,062	$79,940	-
1986	$75,855	$69,813	$69,634	$71,740	$85,968	$80,892	$78,955	$73,496	$73,827	$78,373	-
1987	$80,862	$72,986	$80,898	$79,500	$91,051	$84,280	$82,133	$77,565	$78,254	$81,095	-
1988	$82,005	$75,321	$80,924	$79,693	$89,479	$85,184	$82,548	$80,061	$80,272	$80,297	$86,266
1989	$81,920	$76,582	$81,077	$80,810	$87,896	$84,533	$82,681	$80,327	$80,946	$78,972	$85,378

Notes :

* 1. Expressed in inflation adjusted, real 1989 dollars
2. Inflation adjustments have been based on the Consumer Price Index for Edmonton and Calgary.

** Hinton was not included in the 1981 study

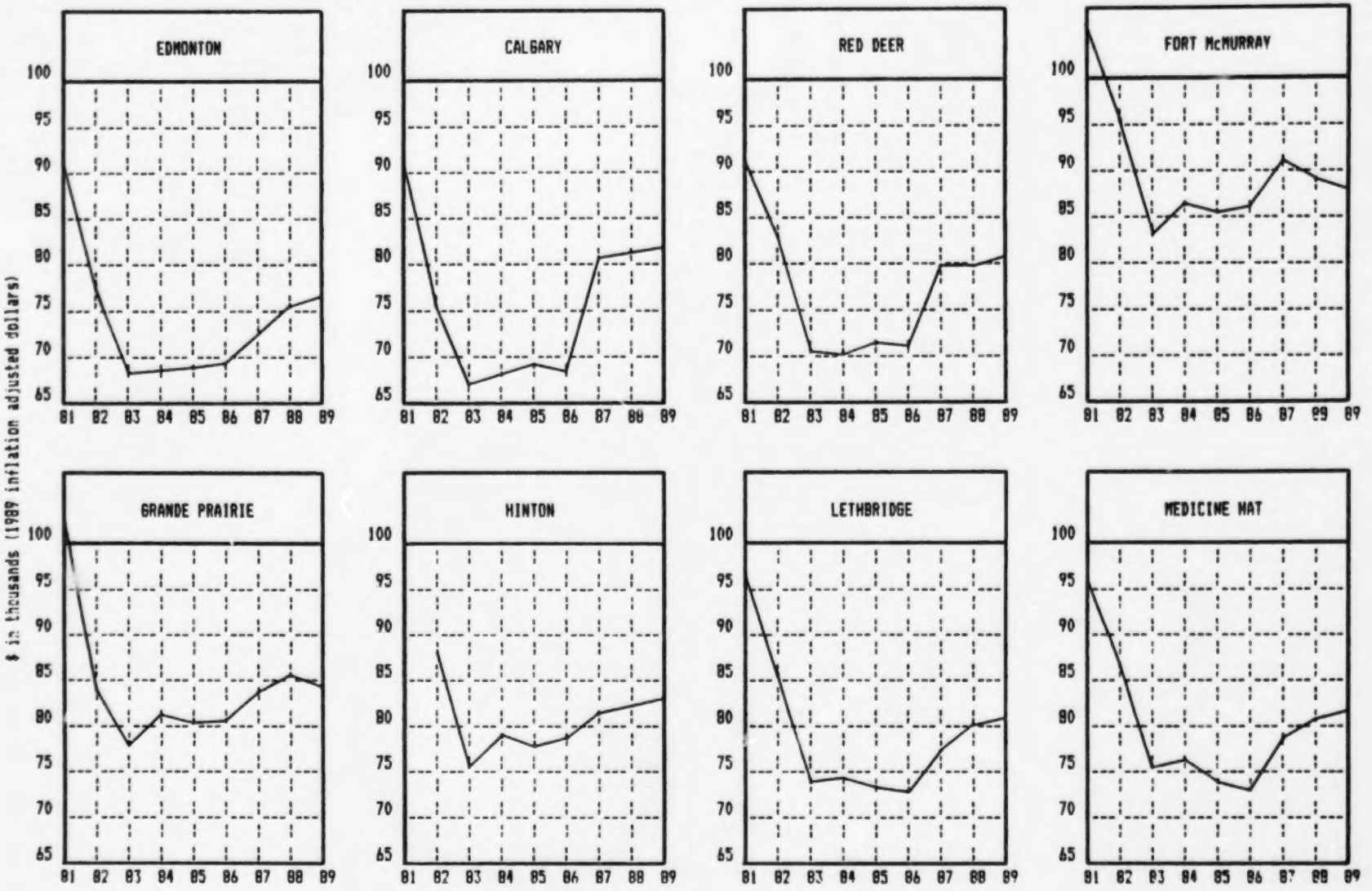
*** Lloydminster was not included in the 1981 through 1983 studies

**** Peace River was not included in the 1981 through 1987 studies

>>>> Costs for years prior to 1988 have been adjusted to apply to the split-level model used in the 1988 study instead of the bungalow used in previous years.

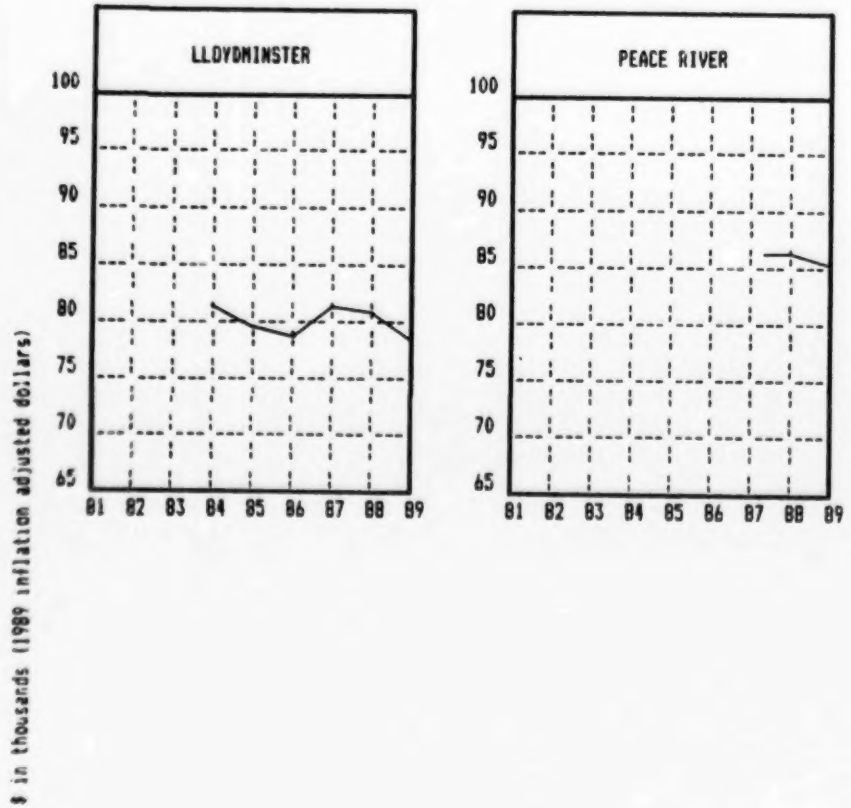
2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

TABLE SD. 8 : Comparative Total Cost Graphs 1981 -1989 (inflation adjusted dollars)



2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

TABLE SD. 8 : Comparative Total Cost Graphs 1981 -1989 (inflation adjusted dollars) (cont'd)



2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

TABLE SD. 9 : Comparative Costs per Square Foot of Gross Floor Area 1981 - 1989 (nominal dollars)

YEAR	AVERAGE	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	* HINTON	LETHBRIDGE	MEDICINE HAT	** LLOYD-MINSTER	*** PEACE RIVER
1981	$41.66	$39.32	$38.98	$39.54	$47.60	$43.97	-	$41.27	$40.93	-	-
1982	$40.39	$37.15	$36.33	$39.81	$45.55	$40.09	$41.81	$40.92	$41.46	-	-
1983	$37.98	$35.18	$34.42	$36.38	$42.37	$39.83	$39.07	$37.84	$38.72	-	-
1984	$39.17	$35.23	$35.00	$36.00	$44.40	$41.97	$40.81	$38.16	$39.16	$41.72	-
1985	$39.91	$36.70	$36.77	$37.79	$44.87	$42.14	$41.02	$38.88	$38.92	$42.09	-
1986	$41.48	$38.20	$38.03	$39.22	$47.04	$44.27	$43.21	$40.14	$40.32	$42.89	-
1987	$45.93	$41.49	$45.90	$45.15	$51.76	$47.91	$46.69	$44.01	$44.40	$46.10	-
1988	$47.97	$44.09	$47.28	$46.61	$52.38	$49.87	$48.32	$46.78	$46.90	$47.01	$50.50
1989	$50.40	$47.12	$49.88	$49.72	$54.08	$52.01	$50.87	$49.42	$49.80	$48.59	$52.53

Notes : * Hinton was not included in the 1981 study
** Lloydminster was not included in the 1981 through 1983 studies
*** Peace River was not included in the 1981 through 1987 studies
>>> Costs for years prior to 1988 have been adjusted to apply to the split-level model used in the 1988 study instead of the bungalow used in previous years.

2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

TABLE SD. 10 : Comparative Costs per Square Foot of Gross Floor Area 1981 - 1989 (inflation adjusted dollars) *

YEAR	AVERAGE	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	** HINTON	LETHBRIDGE	MEDICINE HAT	*** LLOYD-MINSTER	**** PEACE RIVER
1981	$59.71	$56.30	$55.92	$56.67	$68.17	$62.97	-	$59.21	$58.72	-	-
1982	$52.37	$48.13	$47.15	$51.63	$59.01	$51.94	$54.16	$53.11	$53.81	-	-
1983	$45.64	$42.25	$41.41	$43.73	$50.88	$47.84	$46.92	$45.53	$46.59	-	-
1984	$47.07	$42.31	$42.11	$43.27	$53.39	$50.40	$49.01	$45.91	$47.11	$50.10	-
1985	$46.66	$42.88	$43.04	$44.19	$52.42	$49.23	$47.93	$45.51	$45.56	$49.18	-
1986	$46.66	$42.95	$42.84	$44.13	$52.88	$49.76	$48.57	$45.21	$45.42	$48.21	-
1987	$49.75	$44.90	$49.77	$48.91	$56.01	$51.85	$50.53	$47.72	$48.14	$49.89	-
1988	$50.45	$46.34	$49.78	$49.03	$55.05	$52.40	$50.78	$49.25	$49.38	$49.40	$53.07
1989	$50.40	$47.12	$49.88	$49.72	$54.08	$52.01	$50.87	$49.42	$49.80	$48.59	$52.53

Notes :
* 1. Expressed in inflation adjusted, real 1989 dollars
2. Inflation adjustments have been based on the Consumer Price Index for Edmonton and Calgary.
** Hinton was not included in the 1981 study
*** Lloydminster was not included in the 1981 through 1983 studies
**** Peace River was not included in the 1981 through 1987 studies
>>>> Costs for years prior to 1988 have been adjusted to apply to the split-level model used in the 1988 study instead of the bungalow used in previous years.

2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

TABLE SD. 11 : Trade Division Cost Summaries

LOCATION	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	HINTON	LETHBRIDGE	MEDICINE HAT	LLOYD-MINSTER	PEACE RIVER
Divisions										
1. Excavation	2,807	3,426	3,498	3,989	3,166	2,920	3,351	3,153	3,453	3,199
2. Concrete	9,685	9,856	10,060	11,826	11,224	11,415	10,077	10,903	10,352	10,493
3. Damproofing	407	490	514	655	605	499	488	484	445	606
4. Siding	5,488	5,744	6,207	6,226	6,078	5,736	5,499	5,485	5,622	6,217
5. Roofing	1,798	1,956	1,920	1,873	1,936	1,736	1,806	1,855	1,588	2,008
6. Rough Carpentry	14,606	14,915	14,490	16,715	15,518	15,386	15,350	14,351	14,304	15,239
7. Finish Carpentry	2,140	2,217	2,065	2,219	2,077	2,009	2,092	2,075	2,023	2,175
8. Windows and Glazing	2,631	2,676	2,748	2,887	2,860	2,631	2,624	2,683	2,701	3,018
9. Sealants	63	77	69	69	70	64	61	65	60	70
10. Doors	3,273	3,271	3,495	3,579	3,772	3,516	3,399	3,385	3,531	3,889
11. Hardware	416	440	421	440	427	424	438	432	411	432
12. Ceramic Tile NA (included in plumbing).										
SUB - TOTAL	$43,314	$45,068	$45,487	$50,478	$47,733	$46,336	$45,185	$44,871	$44,490	$47,346

2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

TABLE SD. 11 : Trade Division Cost Summaries (cont'd)

LOCATION	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	HINTON	LETHBRIDGE	MEDICINE HAT	LLOYD-MINSTER	PEACE RIVER
Divisions										
13. Wallboard	5,124	5,632	5,325	6,275	5,900	5,903	5,519	5,557	5,626	6,239
14. Flooring	3,439	3,647	3,594	3,490	3,873	3,522	3,452	3,654	3,518	3,970
15. Painting	2,418	2,588	2,576	2,693	2,792	2,743	2,756	2,765	2,524	2,779
16. Fittings	4,219	4,494	4,494	4,846	4,432	4,367	4,753	4,662	4,304	4,840
17. Specialties	576	608	587	612	629	587	612	617	578	644
18. Appliances	112	130	117	132	139	123	135	135	127	140
19. Plumbing	5,720	6,360	6,150	6,335	6,220	6,200	5,690	5,815	5,530	6,435
20. Heating	2,550	2,840	2,895	3,270	3,215	3,150	2,605	3,005	2,835	3,330
21. Electrical	3,610	4,210	4,085	4,265	4,100	4,250	4,120	4,365	3,940	4,155
22. Site Overhead	5,500	5,500	5,500	5,500	5,500	5,500	5,500	5,500	5,500	5,500
TOTAL	$76,582	$81,077	$80,810	$87,896	$84,533	$82,681	$80,327	$80,946	$78,972	$85,378

3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

TABLE WA. 1 : Total Building Costs

ITEM	EDMONTON		CALGARY		RED DEER		FORT McMURRAY		GRANDE PRAIRIE		HINTON		LETHBRIDGE		MEDICINE HAT		LLOYDMINSTER		PEACE RIVER	
ELEMENT	TOTAL $	%	TOTAL $	%	TOTAL $	%	TOTAL $	%	TOTAL $	%	TOTAL $	%	TOTAL $	%	TOTAL $	%	TOTAL $	%	TOTAL $	%
Labour	277,437	35.5	285,392	36.0	291,534	36.2	315,371	36.0	309,972	36.0	306,812	36.1	280,749	35.1	286,400	35.2	281,390	34.2	314,612	35.8
Material	503,490	64.5	507,013	64.0	513,211	63.8	559,754	64.0	551,813	64.0	542,823	63.9	519,219	64.9	526,137	64.8	541,646	65.8	564,677	64.2
Total 1989	780,927	100.0	792,405	100.0	804,745	100.0	875,125	100.0	861,785	100.0	849,635	100.0	799,968	100.0	812,537	100.0	823,036	100.0	879,289	100.0
Cost per m2	$420.53		$426.71		$433.36		$471.26		$464.07		$457.53		$430.79		$437.55		$443.21		$473.50	
Cost per SF	$39.07		$39.64		$40.26		$43.78		$43.11		$42.51		$40.02		$40.65		$41.18		$43.99	
Cost per Apt. 1989 $	$32,539		$33,017		$33,531		$36,464		$35,908		$35,401		$33,332		$33,856		$34,293		$36,637	
Total 1988 $	725,982		744,420		747,455		847,835		820,045		799,979		753,539		758,448		790,103		837,124	
Cost per Apt. 1988 $	30,249		31,018		31,144		35,326		34,169		33,332		31,397		31,602		32,921		34,880	
Changes From 1988	7.6%		6.4%		7.7%		3.2%		5.1%		6.2%		6.2%		7.1%		4.2%		5.0%	

Note : Several total figures may appear in this report as not being added correctly. This is due to the rounding effect in the calculations of the detail costing for each centre.

3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

TABLE WA. 2 : Comparative Costs Ratios *

LOCATION	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	HINTON	LETHBRIDGE	MEDICINE HAT	LLOYD-MINSTER	PEACE RIVER
EDMONTON	1.00	1.01	1.03	1.12	1.10	1.09	1.02	1.04	1.05	1.13
CALGARY	0.99	1.00	1.02	1.10	1.09	1.07	1.01	1.03	1.04	1.11
RED DEER	0.97	0.98	1.00	1.09	1.07	1.06	0.99	1.01	1.02	1.08
FORT McMURRAY	0.89	0.91	0.92	1.00	0.98	0.97	0.91	0.93	0.94	1.00
GRANDE PRAIRIE	0.91	0.92	0.93	1.02	1.00	0.99	0.93	0.94	0.96	1.02
HINTON	0.92	0.93	0.95	1.03	1.01	1.00	0.94	0.96	0.97	1.03
LETHBRIDGE	0.98	0.99	1.01	1.09	1.08	1.06	1.00	1.02	1.03	1.10
MEDICINE HAT	0.96	0.98	0.99	1.08	1.06	1.05	0.98	1.00	1.04	1.08
LLOYD-MINSTER	0.95	0.96	0.98	1.06	1.05	1.03	0.97	0.99	1.00	1.07
PEACE RIVER	0.89	0.90	0.92	1.00	0.98	0.97	0.91	0.92	0.94	1.00

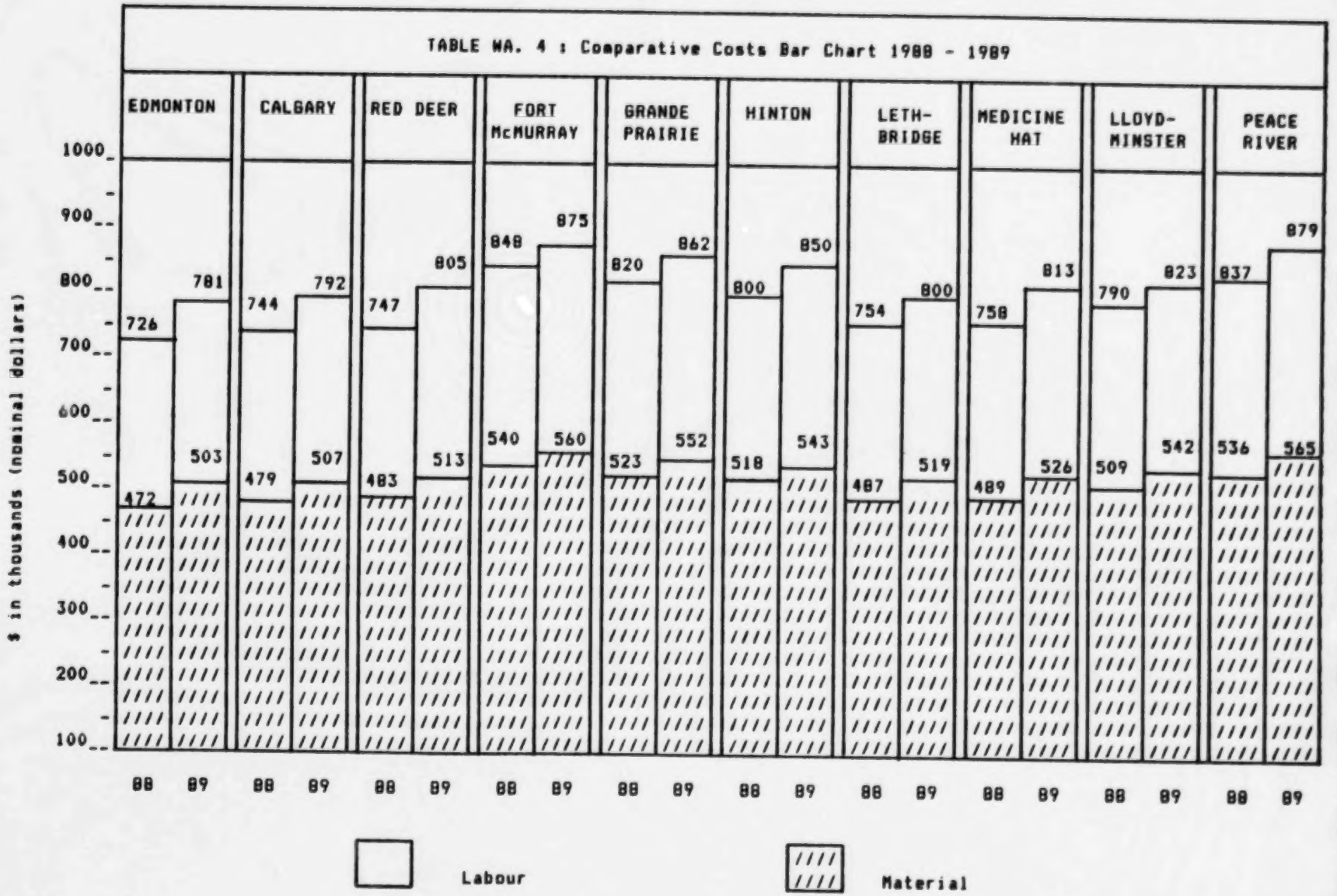
* Entries refer to the ratio of the price for a city in the top row of the table divided by a price for the city listed in the column. For example, Red Deer costs are 1.03 times Edmonton costs.

3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

TABLE WA. 3 : Comparative Costs Table 1988 - 1989

LOCATION	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	HINTON	LETHBRIDGE	MEDICINE HAT	LLOYD-MINSTER	PEACE RIVER
Labour Cost										
1989	$277,437	$285,392	$291,534	$315,371	$309,972	$306,812	$280,749	$286,400	$281,390	$314,612
1988	$253,906	$265,108	$264,349	$308,027	$296,731	$282,472	$266,530	$269,116	$281,377	$301,150
Difference	$23,531	$20,284	$27,185	$7,344	$13,241	$24,340	$14,219	$17,284	$13	$13,462
% Difference	9.3%	7.7%	10.3%	2.4%	4.5%	8.6%	5.3%	6.4%	0.0%	4.5%
Mat'l Cost										
1989	$503,490	$507,013	$513,211	$559,754	$551,813	$542,823	$519,219	$526,137	$541,646	$564,677
1988	$472,076	$479,312	$483,106	$539,808	$523,314	$517,507	$487,009	$489,332	$508,726	$535,974
Difference	$31,414	$27,701	$30,105	$19,946	$28,499	$25,316	$32,210	$36,805	$32,920	$28,703
% Difference	6.7%	5.8%	6.2%	3.7%	5.4%	4.9%	6.6%	7.5%	6.5%	5.4%
Total Cost										
1989	$780,927	$792,405	$804,745	$875,125	$861,785	$849,635	$799,968	$812,537	$823,036	$879,289
1988	$725,982	$744,420	$747,455	$847,835	$820,045	$799,979	$753,539	$758,448	$790,103	$837,124
Difference	$54,945	$47,985	$57,290	$27,290	$41,740	$49,656	$46,429	$54,089	$32,933	$42,165
% Difference	7.6%	6.4%	7.7%	3.2%	5.1%	6.2%	6.2%	7.1%	4.2%	5.0%

3.0 SUMMARY OF FINDINGS FOR THE WALK - UP APARTMENT



3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

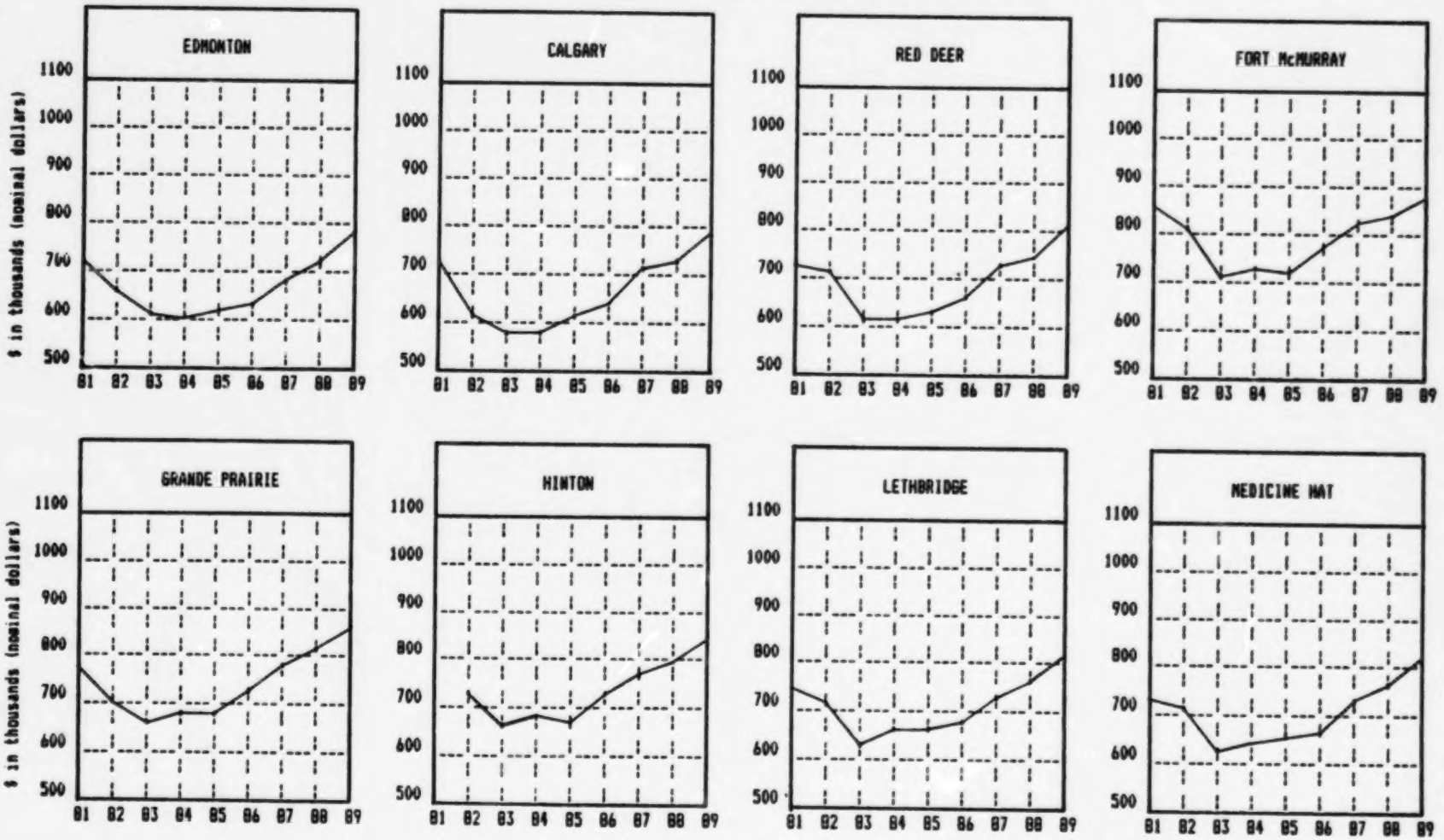
TABLE WA. 5 : Comparative Total Building Costs 1981 -1989 (nominal dollars)

YEAR	AVERAGE	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	* HINTON	LETHBRIDGE	MEDICINE HAT	** LLOYD-MINSTER	*** PEACE RIVER
1981	$756,703	$714,492	$719,003	$733,211	$861,728	$784,409	-	$740,084	$743,992	-	-
1982	$712,232	$665,273	$627,844	$710,485	$805,134	$700,436	$744,686	$720,280	$723,716	-	-
1983	$644,459	$603,046	$592,174	$623,852	$712,262	$669,574	$674,046	$632,872	$647,845	-	-
1984	$658,084	$600,039	$591,861	$624,342	$731,995	$694,794	$693,688	$632,121	$652,014	$701,901	-
1985	$669,882	$625,974	$617,049	$644,466	$734,420	$695,480	$690,526	$651,143	$655,347	$714,537	-
1986	$699,967	$648,534	$647,135	$665,963	$778,075	$742,644	$731,043	$679,312	$676,195	$730,802	-
1987	$754,246	$693,517	$724,502	$734,041	$830,902	$791,155	$776,523	$728,692	$731,429	$777,454	-
1988	$782,493	$725,982	$744,420	$747,455	$847,835	$820,045	$799,979	$753,539	$758,448	$790,103	$837,124
1989	$827,945	$780,927	$792,405	$804,745	$875,125	$861,785	$849,635	$799,968	$812,537	$823,036	$879,289

Notes : * Hinton was not included in the 1981 study
** Lloydminster was not included in the 1981 through 1983 studies
*** Peace River was not included in the 1981 through 1987 studies

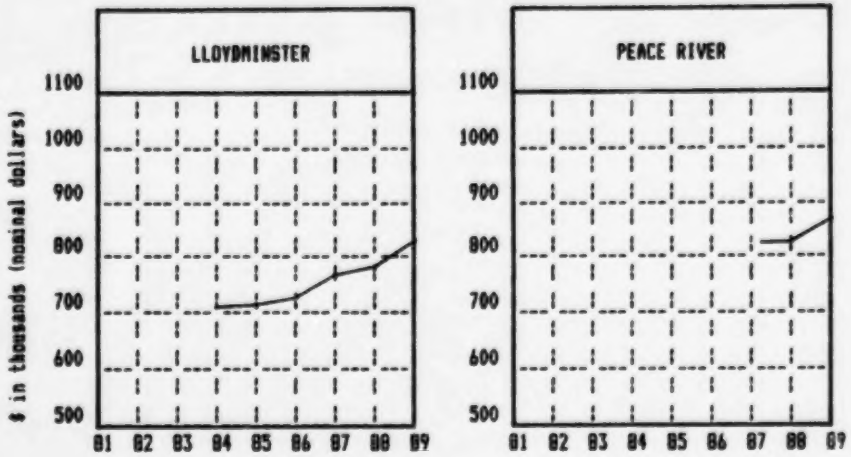
3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

TABLE WA. 6 : Comparative Total Costs Graphs 1981 -1989 (nominal dollars)



3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

TABLE WA. 6 : Comparative Total Costs Graphs 1981 -1989 (nominal dollars) (cont'd)



3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

TABLE WA. 7 : Comparative Costs per Apartment Unit 1981 -1989 (nominal dollars)

YEAR	AVERAGE	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	* HINTON	LETHBRIDGE	MEDICINE HAT	** LLOYD-MINSTER	*** PEACE RIVER
1981	$31,529	$29,771	$29,958	$30,550	$35,905	$32,684	-	$30,837	$31,000	-	-
1982	$29,677	$27,720	$26,160	$29,604	$33,547	$29,185	$31,029	$30,012	$30,155	-	-
1983	$26,853	$25,127	$24,674	$25,994	$29,678	$27,899	$28,085	$26,370	$26,994	-	-
1984	$27,420	$25,002	$24,661	$26,014	$30,500	$28,950	$28,904	$26,338	$27,167	$29,246	-
1985	$27,912	$26,082	$25,710	$26,853	$30,601	$28,978	$28,772	$27,131	$27,306	$29,772	-
1986	$29,165	$27,022	$26,964	$27,748	$32,420	$30,944	$30,460	$28,305	$28,175	$30,450	-
1987	$31,427	$28,897	$30,188	$30,585	$34,621	$32,965	$32,355	$30,362	$30,476	$32,394	-
1988	$32,604	$30,249	$31,018	$31,144	$35,326	$34,169	$33,332	$31,397	$31,602	$32,921	$34,880
1989	$34,498	$32,539	$33,017	$33,531	$36,464	$35,908	$35,401	$33,332	$33,856	$34,293	$36,637

Notes : * Hinton was not included in the 1981 study
** Lloydminster was not included in the 1981 through 1983 studies
*** Peace River was not included in the 1981 through 1987 studies

3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

TABLE NA. 8 : Comparative Apartment Unit Costs Graphs 1981 -1989 (nominal dollars)

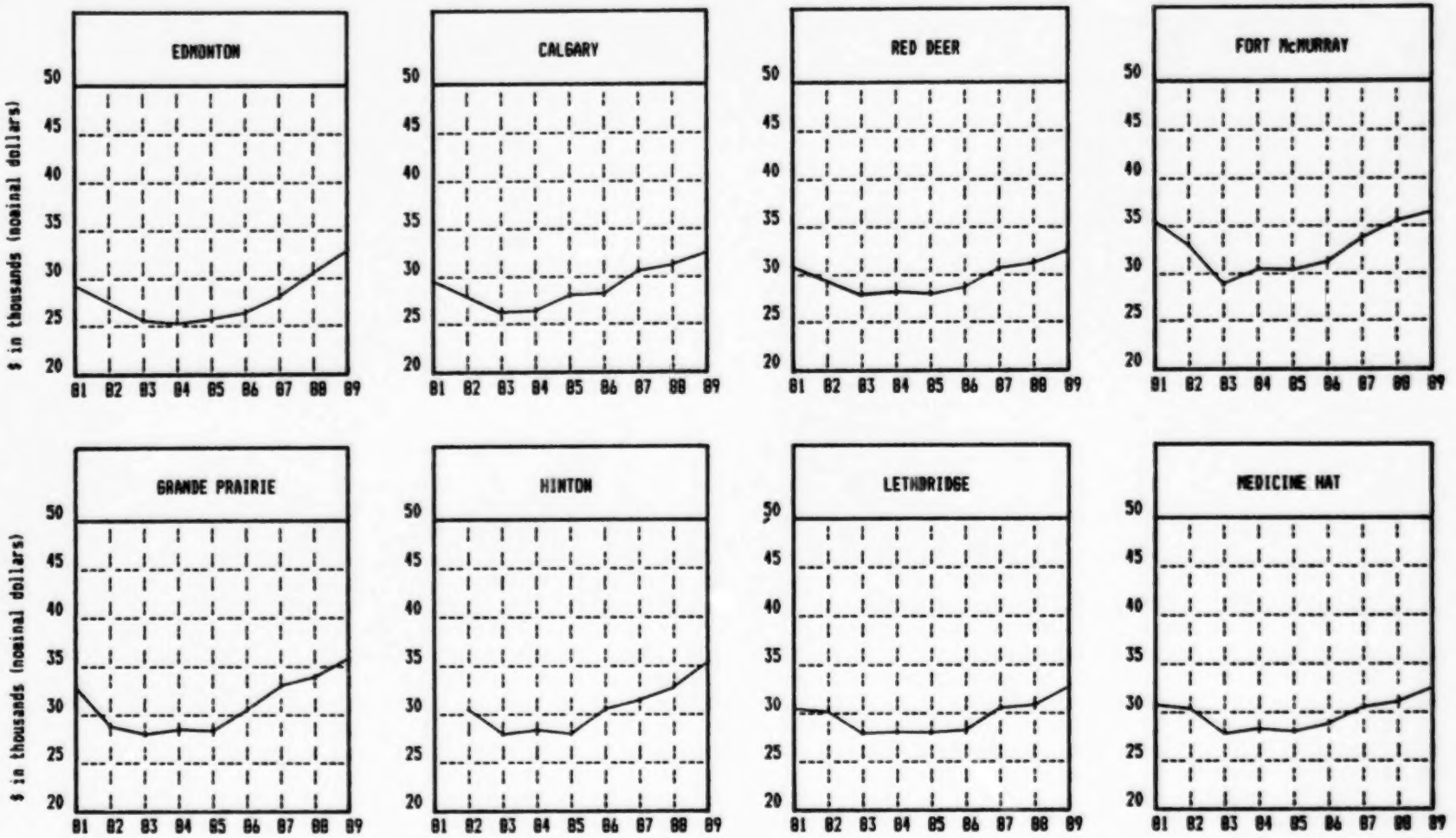
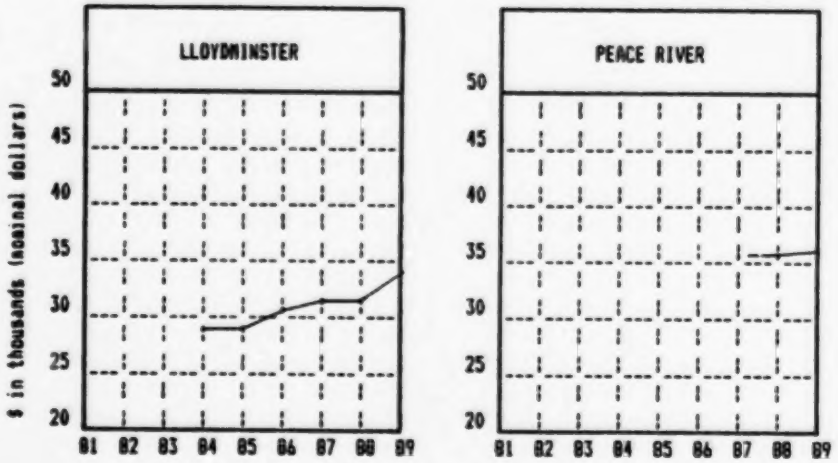


TABLE WA. 8 : Comparative Apartment Unit Costs Graphs 1981 -1989 (nominal dollars) (cont'd)



3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

TABLE WA. 9 : Comparative Costs per Apartment Unit 1981 -1989 (inflation adjusted dollars) *

YEAR	AVERAGE	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	** HINTON	LETHBRIDGE	MEDICINE HAT	*** LLOYD-MINSTER	**** PEACE RIVER
1981	$45,208	$42,647	$42,997	$43,805	$51,435	$46,820	-	$44,259	$44,492	-	-
1982	$38,489	$35,922	$33,965	$38,400	$43,473	$37,820	$40,210	$38,966	$39,152	-	-
1983	$33,075	$30,925	$30,424	$32,022	$36,525	$34,336	$34,565	$32,516	$33,285	-	-
1984	$32,963	$30,034	$29,682	$31,280	$36,640	$34,778	$34,722	$31,700	$32,698	$35,132	-
1985	$32,644	$30,482	$30,105	$31,414	$35,763	$33,867	$33,626	$31,769	$31,973	$34,794	-
1986	$32,822	$30,389	$30,380	$31,234	$36,458	$34,799	$34,254	$31,891	$31,745	$34,244	-
1987	$34,045	$31,282	$32,742	$33,141	$37,479	$35,686	$35,026	$32,930	$33,054	$35,068	-
1988	$34,289	$31,792	$32,662	$32,763	$37,128	$35,912	$35,032	$33,061	$33,277	$34,600	$36,659
1989	$34,498	$32,539	$33,017	$33,531	$36,464	$35,908	$35,401	$33,332	$33,856	$34,293	$36,637

Notes : * 1. Expressed in inflation adjusted, real 1989 dollars
2. Inflation adjustments have been based on the Consumer Price Index for Edmonton and Calgary

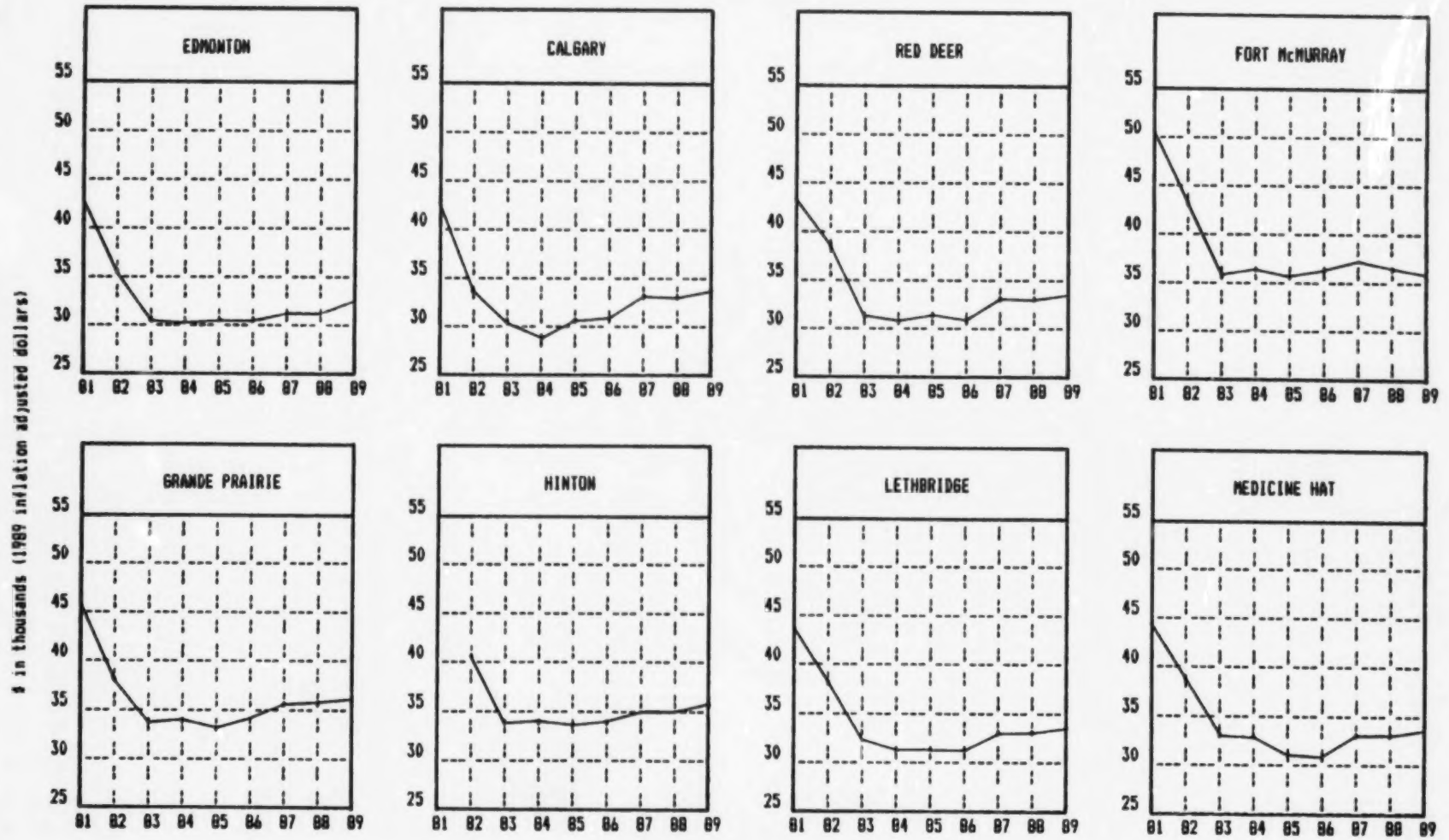
** Hinton was not included in the 1981 study

*** Lloydminster was not included in the 1981 through 1983 studies

**** Peace River was not included in the 1981 through 1987 studies

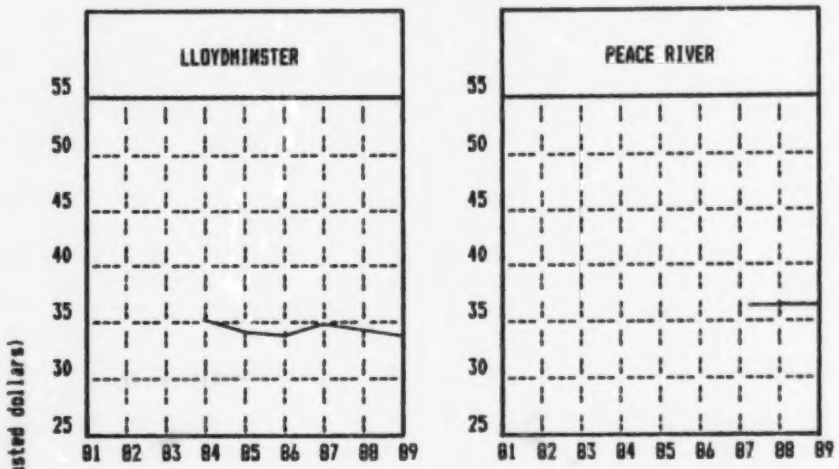
3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

TABLE MA. 10 : Comparative Apartment Unit Costs Graphs 1981 -1989 (inflation adjusted dollars)



3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

TABLE WA. 10 : Comparative Apartment Unit Costs Graphs 1981 -1989 (inflation adjusted dollars) (cont'd)



3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

TABLE WA. 11 : Comparative Costs per Square Foot of Gross Floor Area 1981 -1989 (nominal dollars)

YEAR	AVERAGE	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	* HINTON	LETHBRIDGE	MEDICINE HAT	** LLOYD-MINSTER	*** PEACE RIVER
1981	$37.86	$35.75	$35.97	$36.68	$43.11	$39.24	-	$37.03	$37.22	-	-
1982	$35.63	$33.28	$31.41	$35.54	$40.28	$35.04	$37.26	$36.03	$36.21	-	-
1983	$32.24	$30.17	$29.63	$31.21	$35.63	$33.50	$33.72	$31.66	$32.41	-	-
1984	$32.92	$30.02	$29.61	$31.23	$36.62	$34.76	$34.70	$31.62	$32.62	$35.11	-
1985	$33.51	$31.32	$30.87	$32.24	$36.74	$34.79	$34.55	$32.58	$32.79	$35.75	-
1986	$35.02	$32.44	$32.37	$33.32	$38.93	$37.15	$36.57	$33.98	$33.83	$36.56	-
1987	$37.73	$34.70	$36.25	$36.72	$41.57	$39.58	$38.85	$36.46	$36.59	$38.89	-
1988	$39.15	$36.32	$37.24	$37.39	$42.42	$41.03	$40.02	$37.70	$37.94	$39.53	$41.88
1989	$41.42	$39.07	$39.64	$40.26	$43.78	$43.11	$42.51	$40.02	$40.65	$41.18	$43.99

Notes : * Hinton was not included in the 1981 study
** Lloydminster was not included in the 1981 through 1983 studies
*** Peace River was not included in the 1981 through 1987 studies

3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

TABLE WA. 12 : Comparative Costs per Square Foot of Gross Floor Area 1981 -1989 (inflation adjusted dollars) *

YEAR	AVERAGE	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	** HINTON	LETHBRIDGE	MEDICINE HAT	*** LLOYD-MINSTER	**** PEACE RIVER
1981	$54.28	$51.20	$51.62	$52.59	$61.75	$56.21	-	$53.14	$53.42	-	-
1982	$46.21	$43.13	$40.78	$46.10	$52.19	$45.41	$48.27	$46.78	$47.00	-	-
1983	$39.71	$37.13	$36.53	$38.44	$43.85	$41.22	$41.50	$39.04	$39.96	-	-
1984	$39.58	$36.06	$35.64	$37.55	$43.99	$41.75	$41.69	$38.06	$39.26	$42.18	-
1985	$39.19	$36.60	$36.14	$37.71	$42.94	$40.66	$40.37	$38.14	$38.39	$41.77	-
1986	$39.40	$36.48	$36.47	$37.50	$43.77	$41.78	$41.12	$38.29	$38.11	$41.11	-
1987	$40.87	$37.56	$39.31	$39.79	$45.00	$42.84	$42.05	$39.53	$39.68	$42.10	-
1988	$41.16	$38.17	$39.21	$39.33	$44.57	$43.11	$42.06	$39.69	$39.95	$41.54	$44.01
1989	$41.42	$39.07	$39.64	$40.26	$43.78	$43.11	$42.51	$40.02	$40.65	$41.18	$43.99

Notes : * 1. Expressed in inflation adjusted, real 1989 dollars
2. Inflation adjustments have been based on the Consumer Price Index for Edmonton and Calgary

** Hinton was not included in the 1981 study

*** Lloydminster was not included in the 1981 through 1983 studies

**** Peace River was not included in the 1981 through 1987 studies

3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

TABLE NA. 13 : Trade Division Cost Summaries

LOCATION	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	HINTON	LETHBRIDGE	MEDICINE HAT	LLOYD-MINSTER	PEACE RIVER
Divisions										
1. Excavation	2,901	4,597	3,651	4,233	3,603	2,980	3,742	3,302	3,686	3,625
2. Concrete	20,548	19,243	20,875	24,555	23,927	24,287	20,100	21,848	20,434	22,166
3. Dampproofing	794	953	998	1,305	1,202	993	967	951	884	1,204
4. Siding	15,767	15,724	16,541	19,426	19,522	19,074	18,242	18,516	18,508	20,699
5. Roofing	26,476	27,740	27,766	34,079	28,746	28,305	26,562	27,343	28,380	29,270
6. Rough Carpentry	152,262	154,124	148,179	174,798	165,343	161,939	155,559	150,931	151,989	162,122
7. Finish Carpentry	11,631	12,338	11,195	11,826	11,302	10,635	10,989	10,987	10,824	11,945
8. Windows and Glazing	27,346	26,097	28,199	31,983	29,209	28,464	28,235	28,595	28,109	30,646
9. Sealants	921	937	916	926	945	916	886	909	877	945
10. Doors	44,357	40,646	44,578	44,926	48,023	46,610	44,460	43,539	45,931	49,551
11. Hardware	3,992	4,140	4,046	4,164	4,162	4,062	4,115	4,129	3,913	4,198
12. Ceramic Tiling	5,802	5,782	5,759	6,652	6,669	6,271	6,342	6,663	7,449	6,975
SUB - TOTAL	$312,797	$312,321	$312,703	$358,873	$342,653	$334,536	$320,199	$317,713	$320,984	$343,346

3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

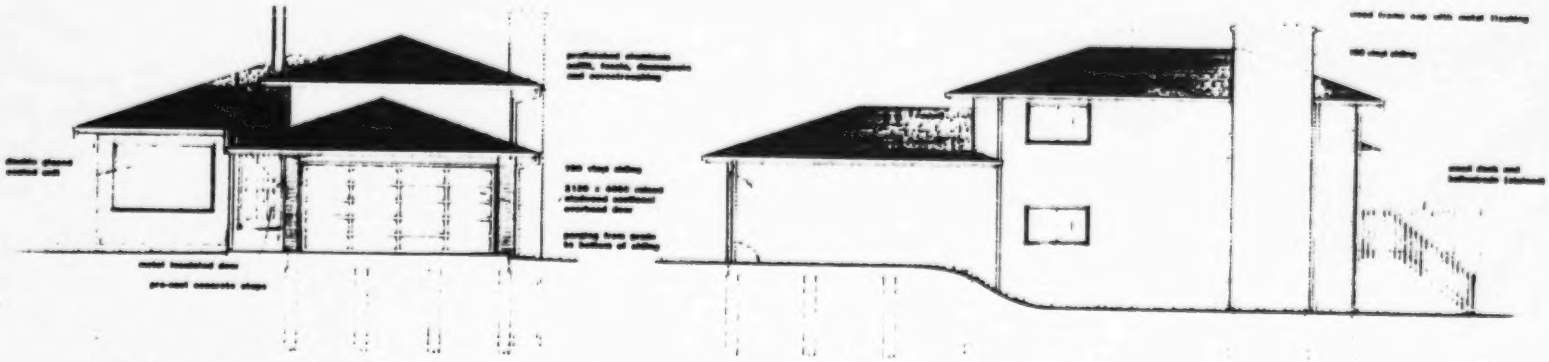
TABLE WA. 13 : Trade Division Cost Summaries (cont'd)

LOCATION	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	HINTON	LETHBRIDGE	MEDICINE HAT	LLOYD-MINSTER	PEACE RIVER
Divisions										
13. Wallboard	58,703	59,050	60,346	69,865	63,296	68,872	61,558	62,691	65,671	68,023
14. Flooring	50,720	51,459	51,968	52,922	53,872	52,268	52,428	54,015	50,840	55,034
15. Painting	21,993	21,184	23,831	23,779	24,337	24,844	24,898	25,467	22,971	24,305
16. Fittings	49,707	49,376	52,722	56,735	52,081	51,476	54,217	53,251	49,546	56,856
17. Specialties	18,743	18,883	18,863	19,479	20,062	19,209	18,592	19,432	18,642	20,439
18. Appliances	34,676	34,676	34,368	35,512	35,572	34,926	35,148	35,208	34,574	36,958
19. Plumbing	67,200	68,880	68,760	69,720	77,712	71,568	66,552	68,616	64,320	79,584
20. Heating	32,760	36,120	39,240	43,560	44,424	41,712	29,856	33,888	45,456	45,120
21. Ventilation	8,280	8,376	8,040	9,480	9,792	9,864	9,072	9,144	9,552	9,864
22. Fire Protection	2,460	2,328	2,304	2,736	2,832	2,880	2,328	2,400	2,880	2,928
23. Electrical	43,560	47,280	50,760	55,320	58,344	60,048	47,808	52,536	62,040	60,048
24. Site Overhead	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Subtotals - 1-24	$751,599	$759,933	$773,905	$847,981	$834,977	$822,203	$772,656	$784,361	$797,476	$852,505
25. Gnrl. Contr's Ovhd.& Profit	29,328	32,472	30,840	27,144	26,808	27,432	27,312	28,176	25,560	26,784
TOTAL	$780,927	$792,405	$804,745	$875,125	$861,785	$849,635	$799,968	$812,537	$823,036	$879,289

APPENDIX A

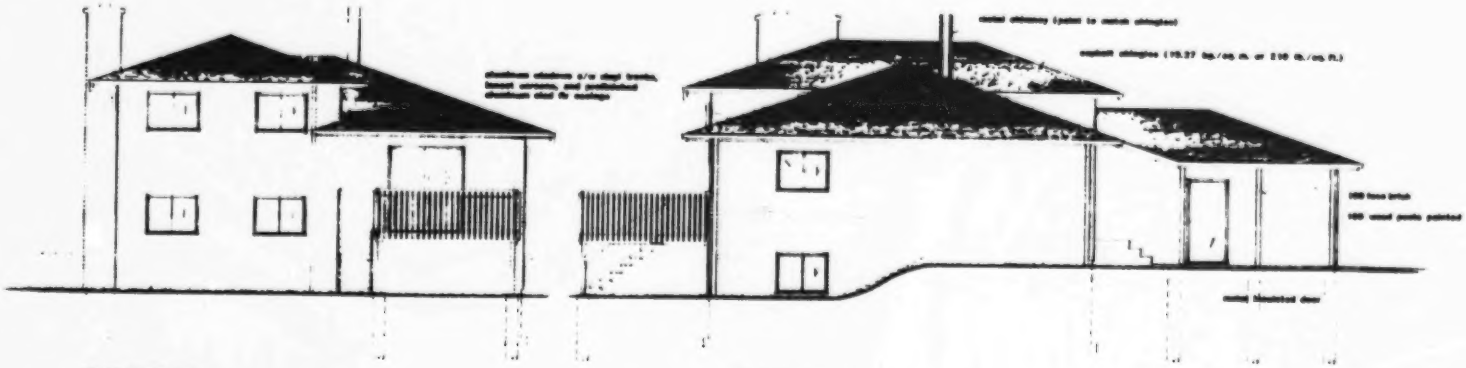
Reduced Drawings : Single Detached Dwelling

1 OF 3



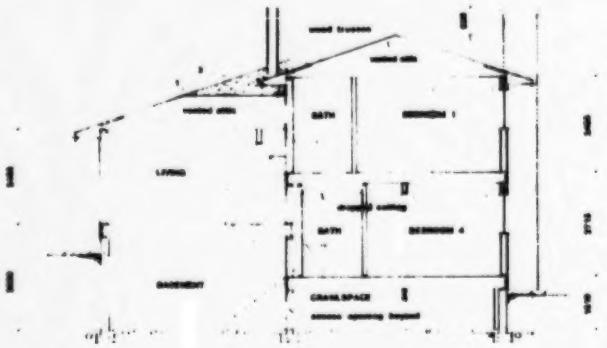
FRONT ELEVATION

RIGHT SIDE ELEVATION

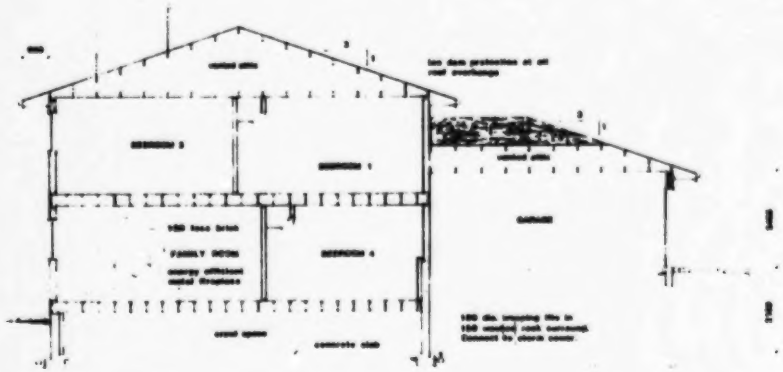


BACK ELEVATION

LEFT SIDE ELEVATION



A-A BUILDING CROSS SECTION



B-B BUILDING CROSS SECTION

SPECIFICATIONS

FOUNDATIONS

- 20 Mpa, type 50 concrete in 400 x 200 reinforced concrete footings
- 20 Mpa, type 50 concrete in 200mm sq concrete foundation walls c/w 4 rows of 015 rebar
- 20 Mpa concrete basement floor slab 75mm thick over 0 mil poly and 100mm compacted sand
- 100mm reinforced garage floor on compacted sand
- 300mm dia. reinforced concrete poles under garage floor and grade beam
- 300mm dia. sonotube fills c/w minimum of 100 washed gravel surround
- asphalt emulsion spray applied to interior and exterior of foundation

FRAMING

- floor joists 38 X 235 SD spruce at 400mm o.c. and c/w 38 X 38 cross-bridging
- built-up 4x beams on adjustable steel posts
- 150mm beyond and beyond 89 plywood subfloor
- 50mm to plywood underlay
- exterior walls 38 X 140 SS spruce at 400mm o.c.
- interior partitions 38 X 89 SS spruce at 400mm o.c.
- finish "sheetfinish" wall sheathing
- pre-engineered wood roof trusses
- 15mm spruce plywood roof sheathing

INSULATION/VAPOUR BARRIER/DRYWALL

- exterior walls R20 glass fibre batts
- 4 mil poly vapour barrier sealed at all joints
- ceilings R40 blown 89 glass fibre insulation and 4 mil poly c.b.
- 12mm gypsum wallboard throughout

EXTERIOR FINISHES

(see building elevations on drawing no. 2)

DOORS AND WINDOWS

- metal insulated front door
- 19mm satin aluminum patio door c/w insect screen and prefinished aluminum clad fit trimmer and casings
- hollow core interior doors (colony cut mahogany), stained
- mahogany bound bi-fold closet doors
- aluminum windows c/w vinyl inserts, insect screens, and prefinished aluminum clad fit casings
- insulated glass sealed unit in living room window
- 2400 wide X 2130 high raised sectional overhead garage door (painted)

INTERIOR FINISHES

- ceramic tile to bath surround
- feature finish to ceilings
- vinyl vinyl flooring in bathroom, kitchen and dining area
- 33oz., 100% nylon carpet with foam slide finish underlay over to vanity, bdrm, wood-grained (bathroom, kitchen, dining area)
- approved hardwoods and trim

FITTINGS

- shelves fit plywood shelving with hardwood edging
- bathroom vanity (solid wood)
- kitchen cupboard and base cabinets (solid wood)
- custom wood railing c/w spindles, railing shoe, and newel posts

SPECIALTIES

- all washroom accessories including bath rack shower
- medicine cabinets
- 25mm dia. metal shower curtain rods
- mailbox and house numbers
- range hood
- closets efficient 915mm brighten c/w bin
- approved hardware throughout

PLUMBING AND HEATING

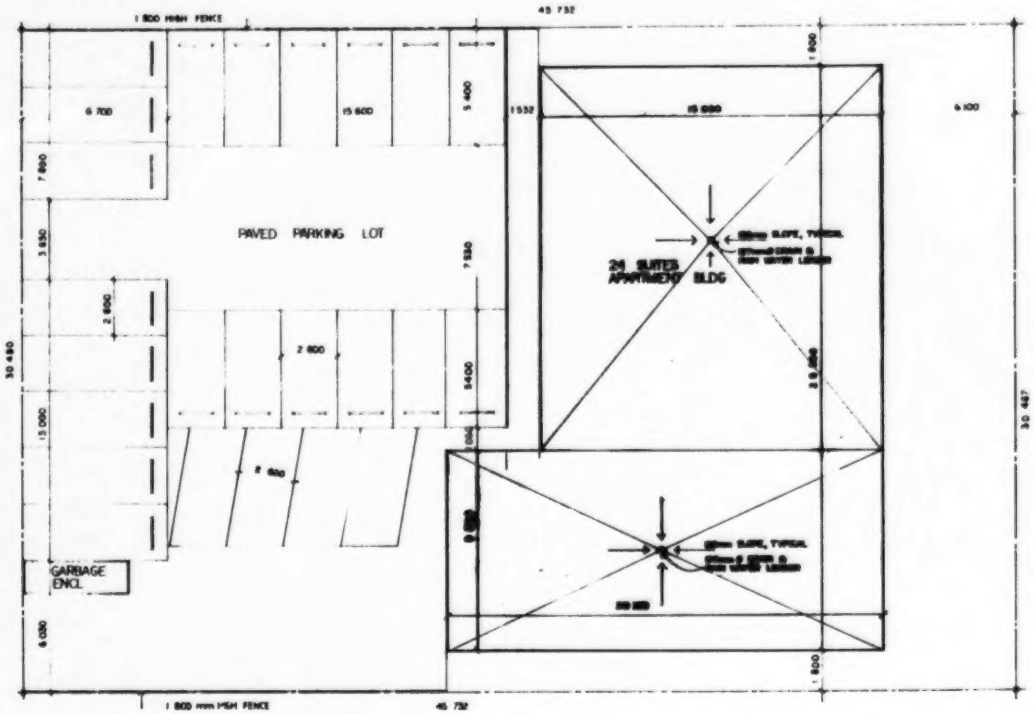
- stainless steel double kitchen sink
- vanity sinks
- water closets
- fiberglass tub/shower units
- fiberglass showers
- 3 piece bath on third level
- water closets
- 2 laundries
- 53 Imp. gallon (152 litres) water heater type fired gas fired, forced air furnace c/w humidifier

ELECTRICAL

- 100 amp, 22 breaker electrical service
- 220 volt electrical service to dryer and range locations
- exterior c/w fluorescent lighting fixture in each bath
- GFI protected plugs in bathrooms
- 2 exterior weatherproof wall plugs
- dishwasher rough-in
- 3 telephone locations
- 3 cable locations
- smoke detectors
- electrical wiring for future garage door opener
- range hood installation
- bathroom fans
- recessed lighting package
- rough-in central vacuum system

APPENDIX B

Reduced Drawings : Walk-Up Apartment



STATISTICS

SITE AREA 1940m

SUITES 24 ONE BEDROOM

BUILDING

AREA 604m²

PARKING 24 CARS

THE BUILDING IS REQUIRED TO FACE AT LEAST ONE STREET

ACCESS WALL PANELS OR WINDOW SHALL BE PROVIDED ON SECOND AND THIRD FLOOR IN AT LEAST 1 WALL FACING ON A STREET.

SPACIAL SEPARATIONS BETWEEN BUILDINGS

THE MAXIMUM PERCENTAGE OF UNPROTECTED OPENINGS IN AN EXPOSED BUILDING FACE SHALL CONFORM TO THE REQUIREMENTS OUTLINED IN THE ALBERTA BUILDING CODE, 19.10.3.1

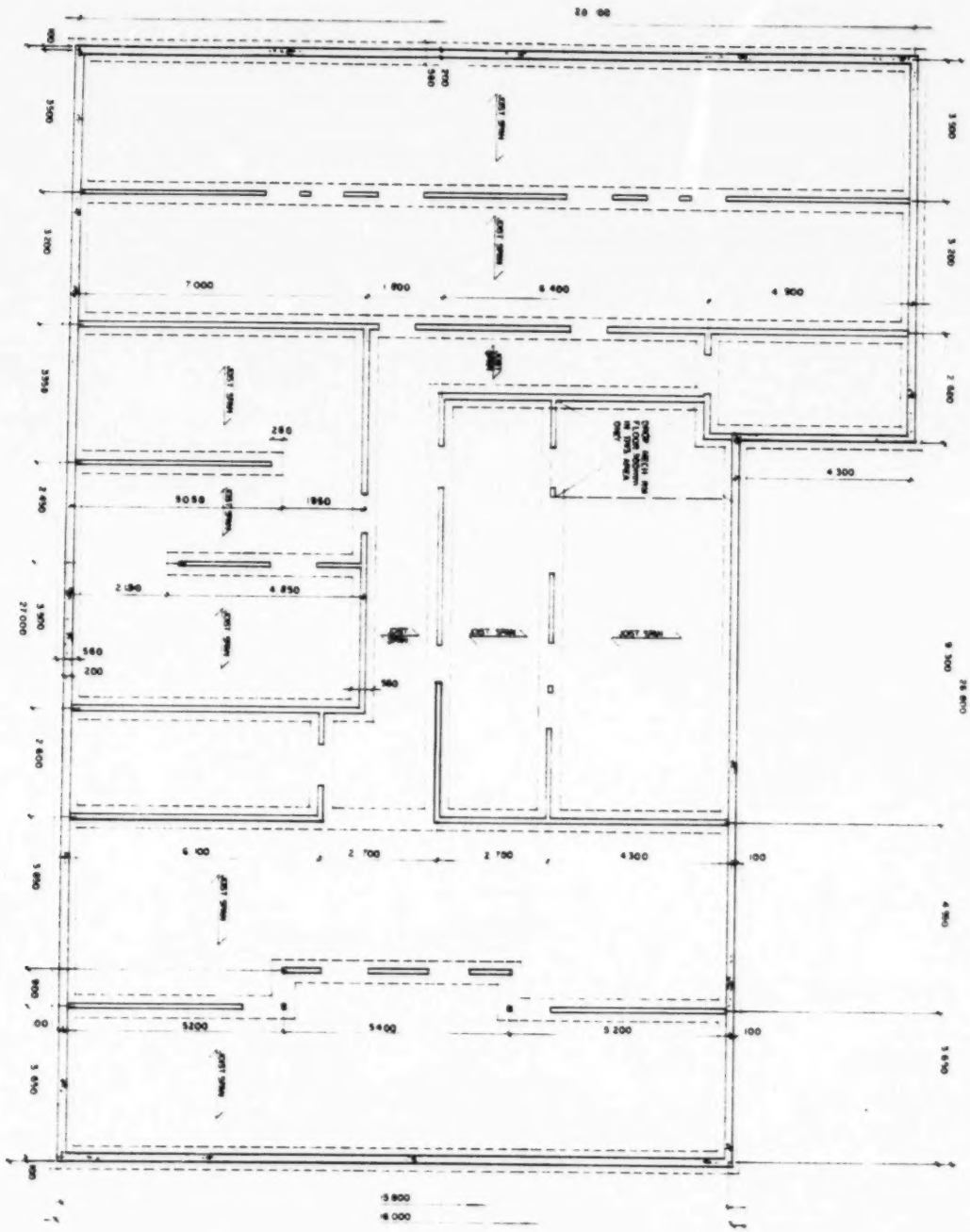
ONE SET OF EXAMINED DRAWINGS SHALL BE AVAILABLE CONTINUOUSLY AT THE CONSTRUCTION SITE DURING WORKING HOURS FOR INSPECTION BY THE AUTHORITY HAVING JURISDICTION.

ALBERTA HOUSE COST COMPARISON STUDY

SITE PLAN

SCALE 1:100

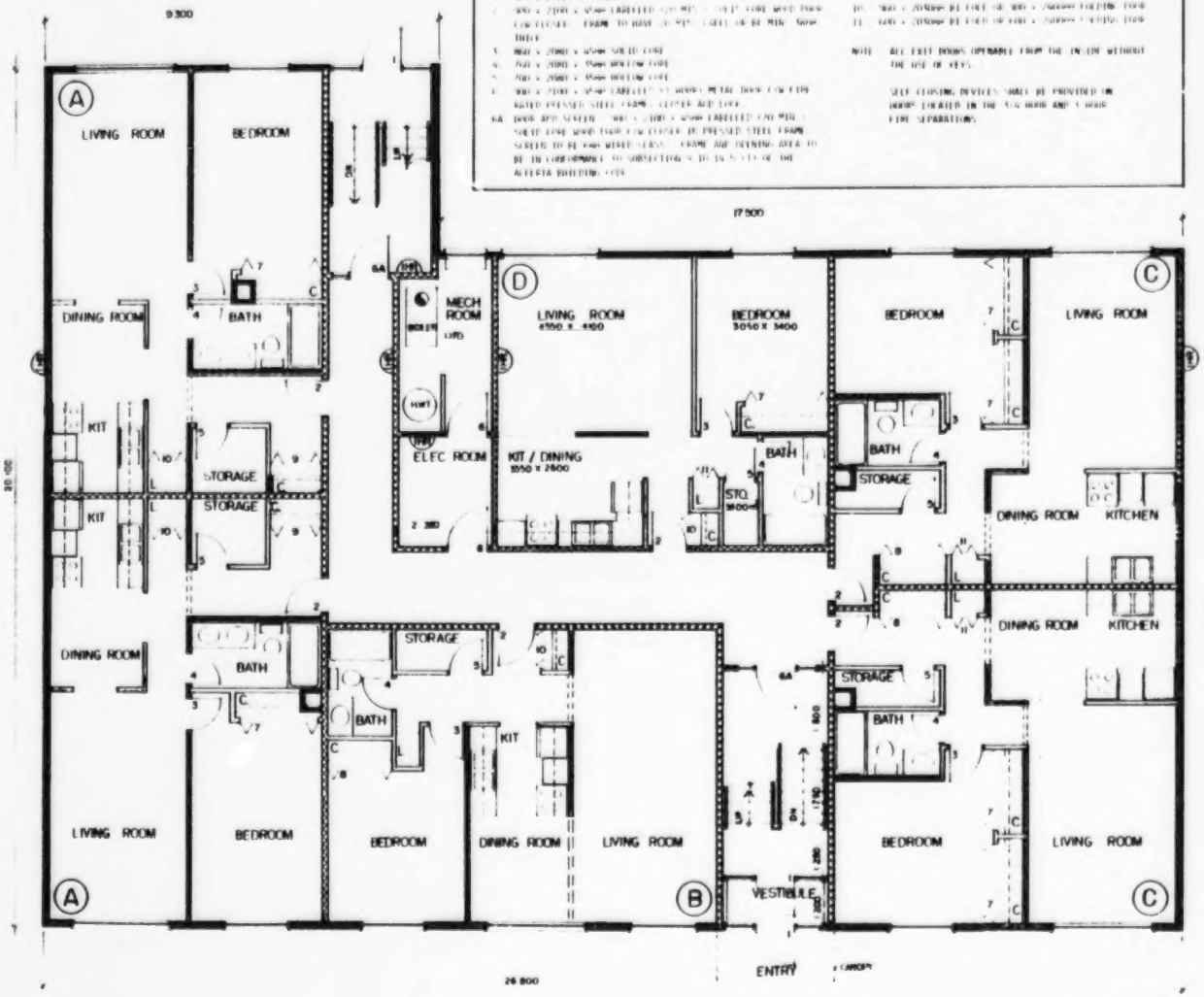
0 1 2 3 4 5 6 7 8 9 10M



ALBERTA HOUSE COST COMPARISON STUDY

FOUNDATION PLAN

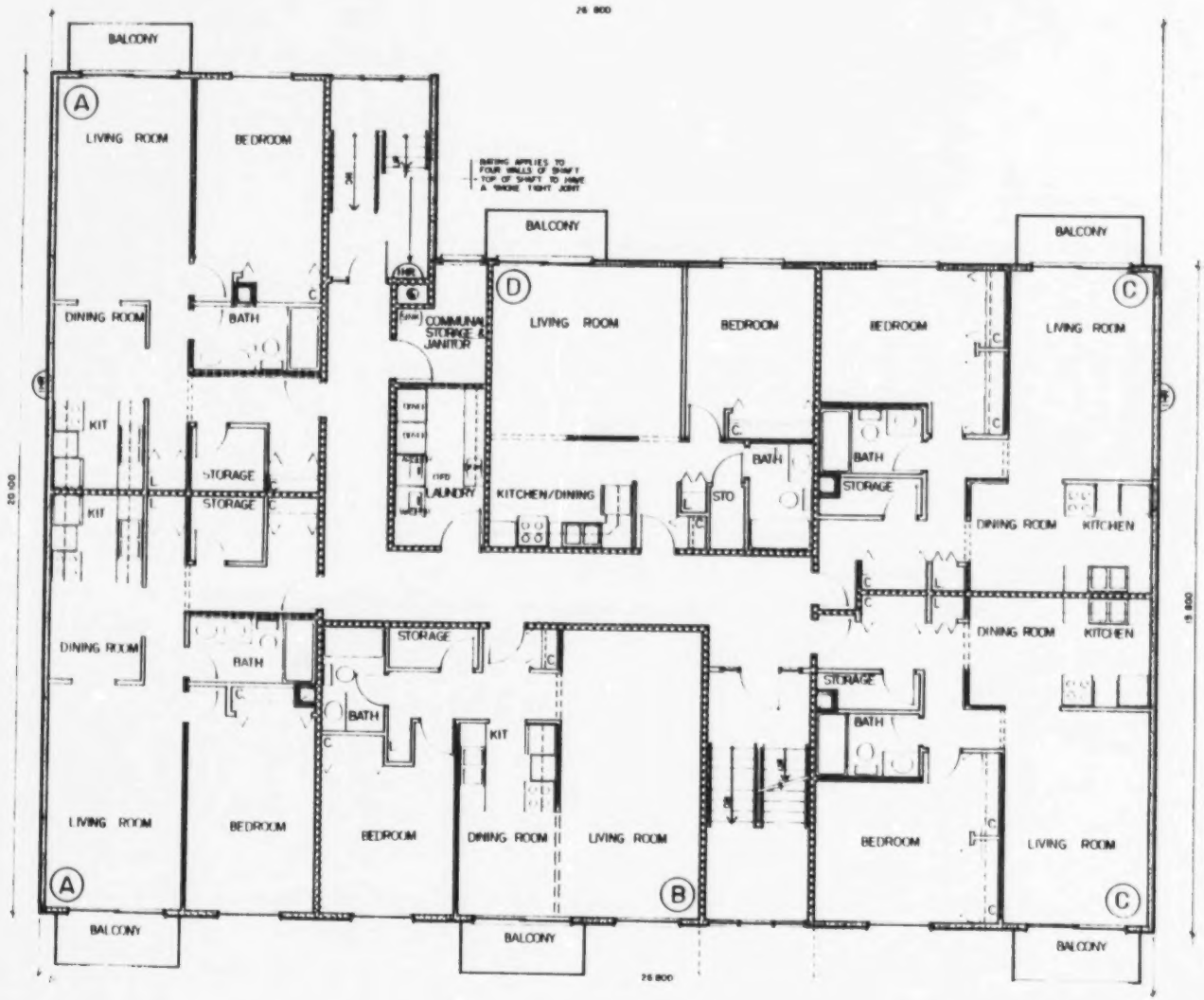
SCALE 1 50



ALBERTA HOUSE COST COMPARISON STUDY

BASEMENT FLOOR PLAN

SCALE 1:50

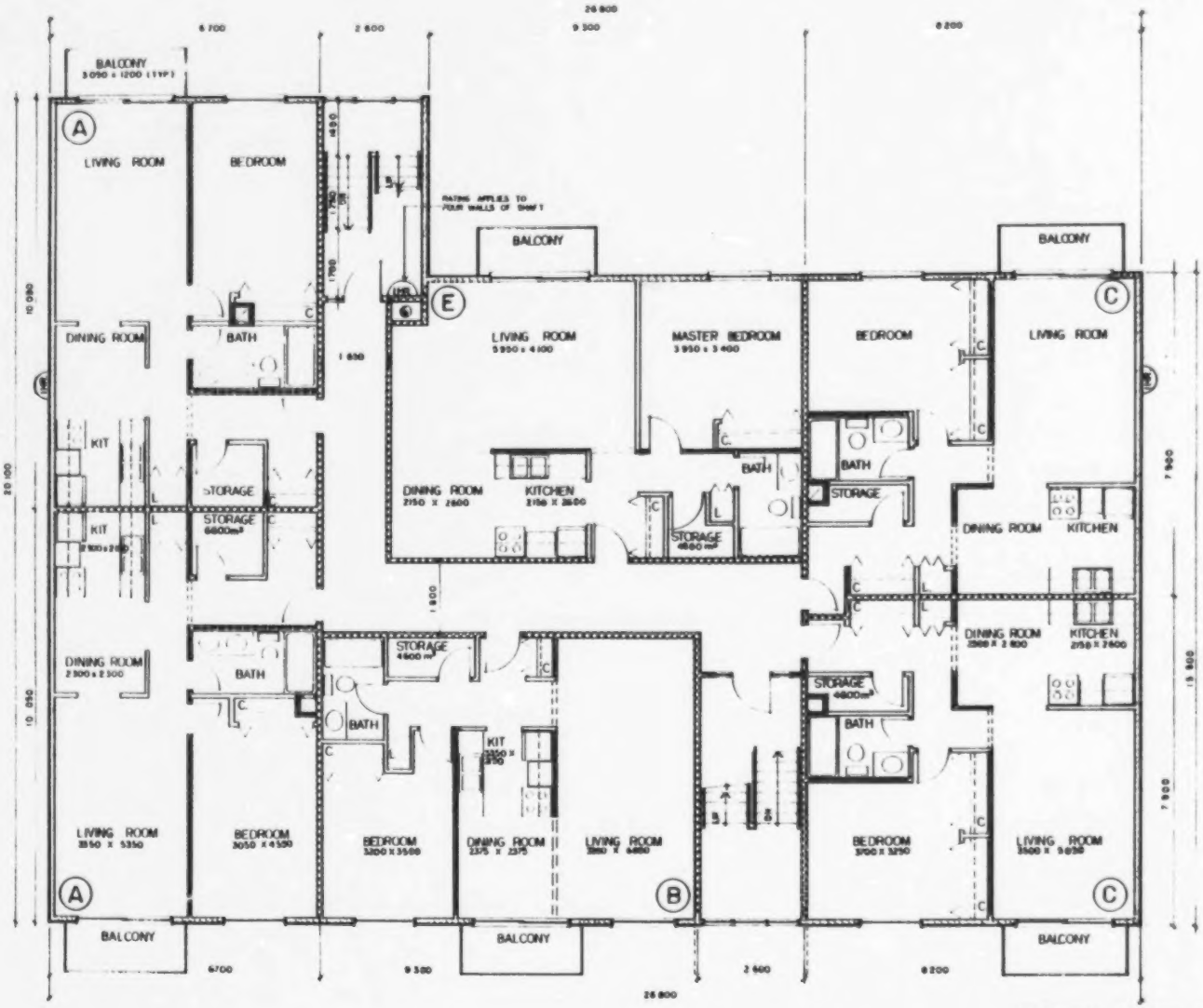


NOTE
SEE BASEMENT FLOOR PLAN FOR TYPICAL DOOR & W-FOLD DOOR TYPES, SIZES & LOCATIONS

ALBERTA HOUSE COST COMPARISON STUDY

MAIN FLOOR PLAN

SCALE 1:50

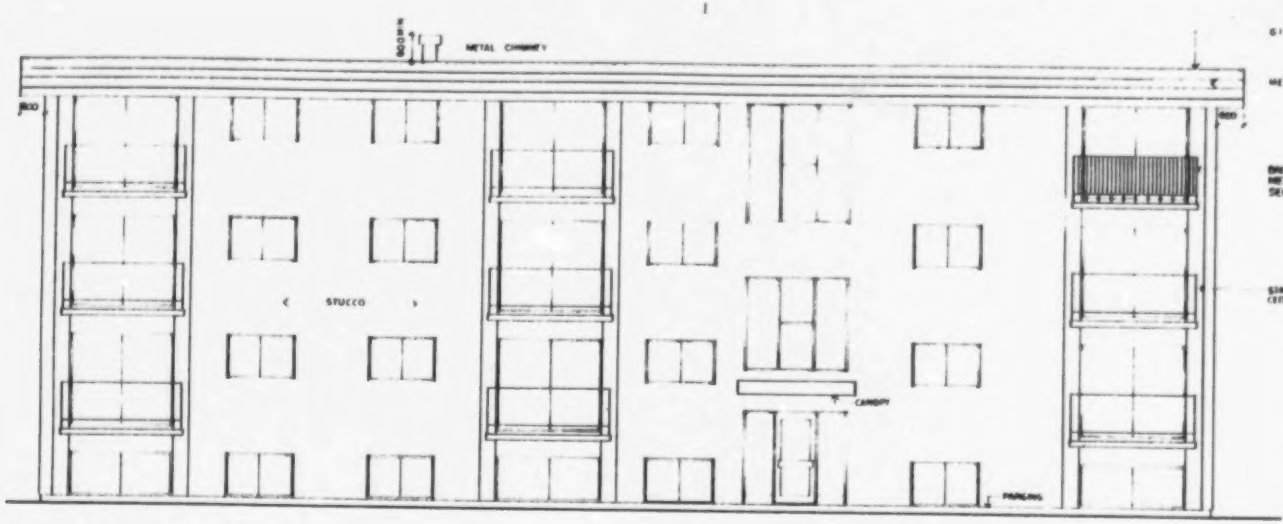


NOTE
SEE BASEMENT FLOOR PLAN
FOR TYPICAL DOOR, BI-FOLD
DOOR TYPES, SIZES & LOCATIONS

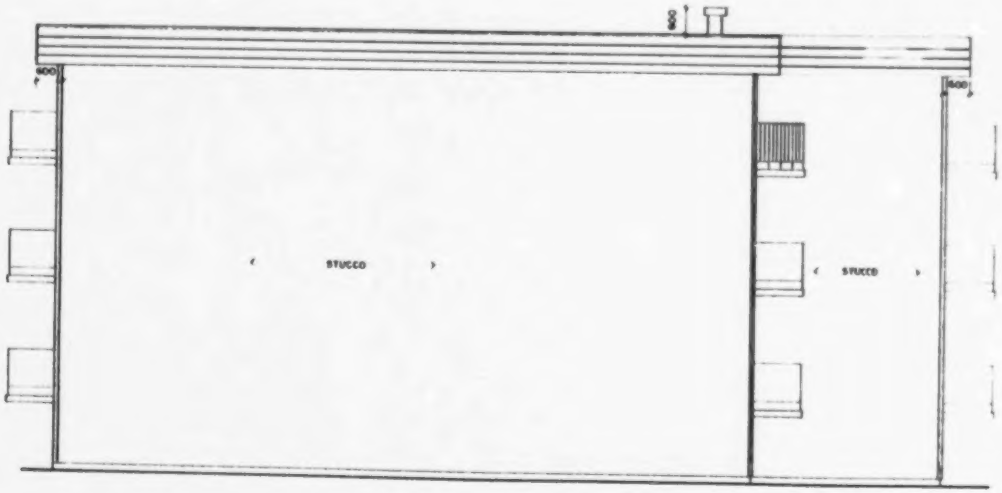
ALBERTA HOUSE COST COMPARISON STUDY

2ND & 3RD FLOOR PLAN

SCALE 1:50



FRONT ELEVATION



RIGHT ELEVATION

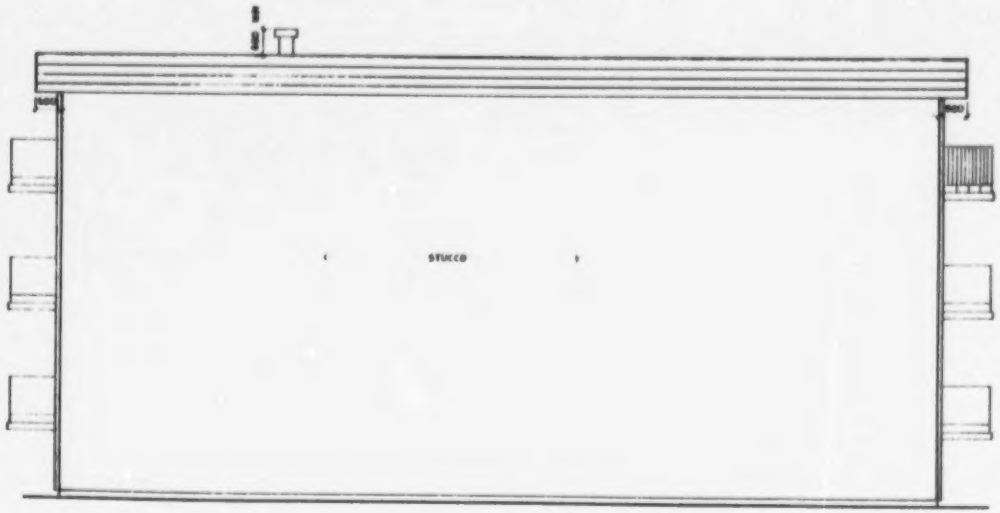
ALBERTA HOUSE COST COMPARISON STUDY

ELEVATIONS

SCALE 1:50

METAL CHIMNEY
STUCCO
STUCCO
GRILL
G.I. FLASHING PAINTED TO MATCH FASCIA
METAL FASCIA PAINTED WHITE
BALCONY GUARD 1070mm HIGH, 970mm HIGH METAL PICKETS AT 100mm O/C RAILING SECURED TO BALCONY DECK AT 1200mm O/C MAX
STAINED DARK BROWN CEDAR COLUMN

REAR ELEVATION

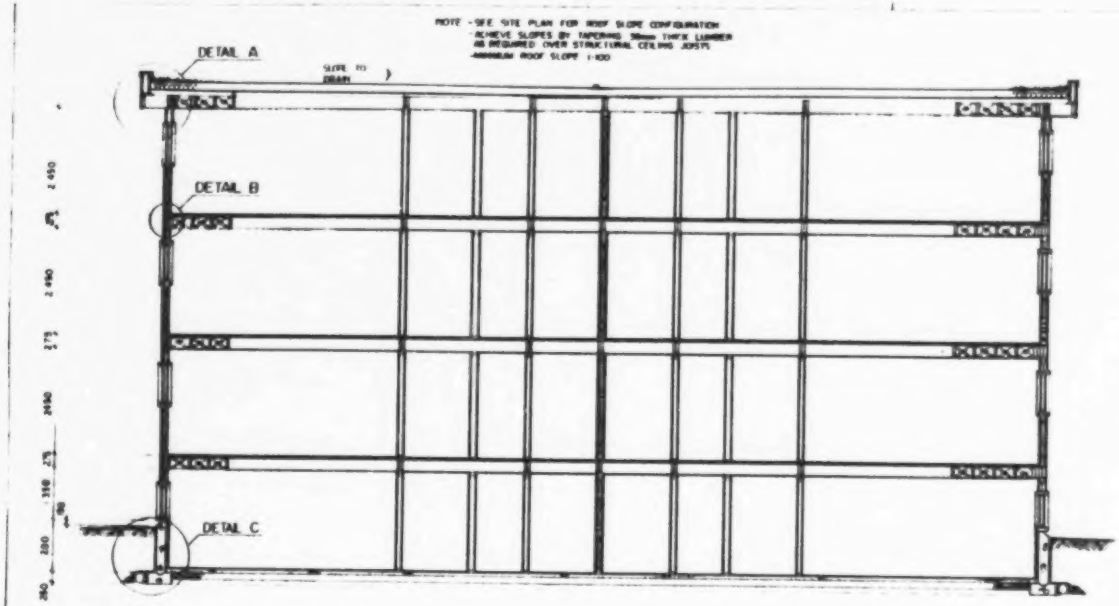


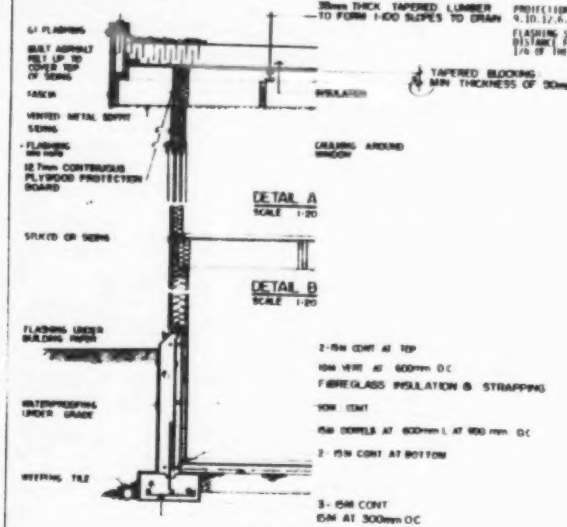
LEFT ELEVATION

ALBERTA HOUSE COST COMPARISON STUDY

ELEVATIONS

SCALE 1:50




38mm THICK TAPERED LUMBER
— TO FORM 1:100 SLOPES TO DRAIN
PROJECTION OF SOFFITS SHALL BE PROVIDED AS STATED IN ARTICLES 9.10.12.6. OR 9.10.12.7.
FLASHING SHALL BE APPLIED OVER ALL EXTERIOR OPENINGS WHERE THE VERTICAL DISTANCE FROM THE BOTTOM OF THE EAVE TO THE TOP OF THE TRIM IS MORE THAN 1/6 OF THE HORIZONTAL OVERHANG OF THE EAVE
TAPERED BLOCKING
MIN THICKNESS OF 50mm
INSULATION
CAULKING AROUND WINDOW
GI FLASHING
BUILT ASPHALT ROLL UP TO COVER TOP OF SIDING
FASCIA
VENTED METAL SOFFIT
SIDING
FLASHING
12.7mm CONTINUOUS PLYWOOD PROTECTION BOARD
STUCCO OR SIDING
FLASHING UNDER BUILDING PAPER
WATERPROOFING UNDER GRADE
WEEPING TILE
DETAIL A
SCALE 1:20
DETAIL B
SCALE 1:20
2-15M CONT AT TOP
10M VERT AT 600mm O.C.
FIBREGLASS INSULATION & STRAPPING
10M CONT
15M DOWELS AT 600mm L AT 900 mm O.C.
2-15M CONT AT BOTTOM
3-15M CONT
15M AT 300mm OC
DETAIL C
SCALE 1:20
38x140mm STUDS AT 400mm O.C.
12.7mm TYPE X GYPSUM BD, BOTH SIDES
38 X 140mm SMITH
12.7mm ø ANCHOR BOLT
900mm LONG AT 1.200mm O.C.
100 POLYTHENE DAMPROOFING UNDER 38X140mm BOTTOM PLATE
3-15M CONT
15M AT 300mm O.C.
250
960
TYPICAL INTERIOR FOOTING
SCALE 1:20

ROOF CONSTRUCTION - 1 HOUR FIRE RESISTANCE RATING

- ROOFING (ASPHALT SHINGLES)
- SHEET OF ROOFING
- 9.5mm ASPHALT IMPREGNATED INSULATING SHEATHING
- VAPOUR BARRIER
- 12mm PLYWOOD SHEATHING - ALL EDGES SUPPORTED WITH METAL CLIPS @ 150mm SPACING
- 38 x 235mm @ 400mm O.C. (2 STOREY HOUSES, 1 STOREY O.C.)
- 38 x 184mm JOISTS SPACING
- 15.9mm TYPE X GYPSUM BOARD

NOTE
ALTERNATE INSULATION AND V. BARRIER SEC. ABOVE INSULATION 'C' IN JOIST SPACE

EXTERIOR WALL CONSTRUCTION

TYPE A - 45 MIN FIRE RESISTANCE RATING

- SIDING OR STUCCO
- BUILDING PAPER
- 89x 2.5 MINERAL WOOL INSULATION AND VAPOUR BARRIER
- 38 x 89mm WOOD STUDS @ 400mm O.C. (2 OR 3 STOREY WOOD STUDS @ 400mm O.C. FOR BASEMENT)
- 12.7mm GYPSUM BOARD

TYPE B - 1 HOUR FIRE RESISTANCE RATING

- SAME AS TYPE A EXCEPT MINERAL WOOL INSULATION TO HAVE DENSITY OF 2.25 KN/m³ & 15.9mm TYPE X GYPSUM BOARD AND STUCCO OR NON-COMBUSTIBLE SIDING.

FLOOR CONSTRUCTION

- 5/8 HOUR FIRE SEPARATION AND S.T.C. RATING OF 45
- FLOOR FINISH
- 8mm PLYWOOD UNDERLAY
- 19mm T & G TOPPED OR 15.9mm PLYWOOD OR WATERPROOF SUBFLOOR WITH MINERAL FIBRE BETWEEN JOISTS SPACED @ 400mm O.C.
- 38 x 235mm @ 400mm O.C. (2 STOREY HOUSES AT 400mm O.C.)
- 38 x 184mm FLOOR JOISTS AT 400mm O.C. MAX.
- RESILIENT CHANNELS
- 15.9mm TYPE X GYPSUM BOARD TO PROVIDE 1 HOUR FIRE MECHANICAL PROTECTION. APPLY 2 LAYERS OF 15.9mm TYPE X GYPSUM BOARD

CORRIDOR AND DEMISING WALL CONSTRUCTION

- 5/8 HOUR FIRE SEPARATION AND S.T.C. RATING OF 45
- TWO ROWS 38 x 89mm STUDS, EACH SET @ 400mm O.C. STAGGERED ON COMMON 38 x 140mm PLATE, MINIMUM 89mm WITH A MASS OF AT LEAST 2.2kN/m² ON EACH SIDE
- 12.7mm GYPSUM BOARD, BOTH SIDES

BEARING WALL CONSTRUCTION

- 5/8 HOUR FIRE RESISTANCE RATING.
- 38 x 140mm @ 38 x 89mm WOOD STUDS @ 400mm O.C.
- 12.7mm TYPE X GYPSUM WALLBOARD, BOTH SIDES

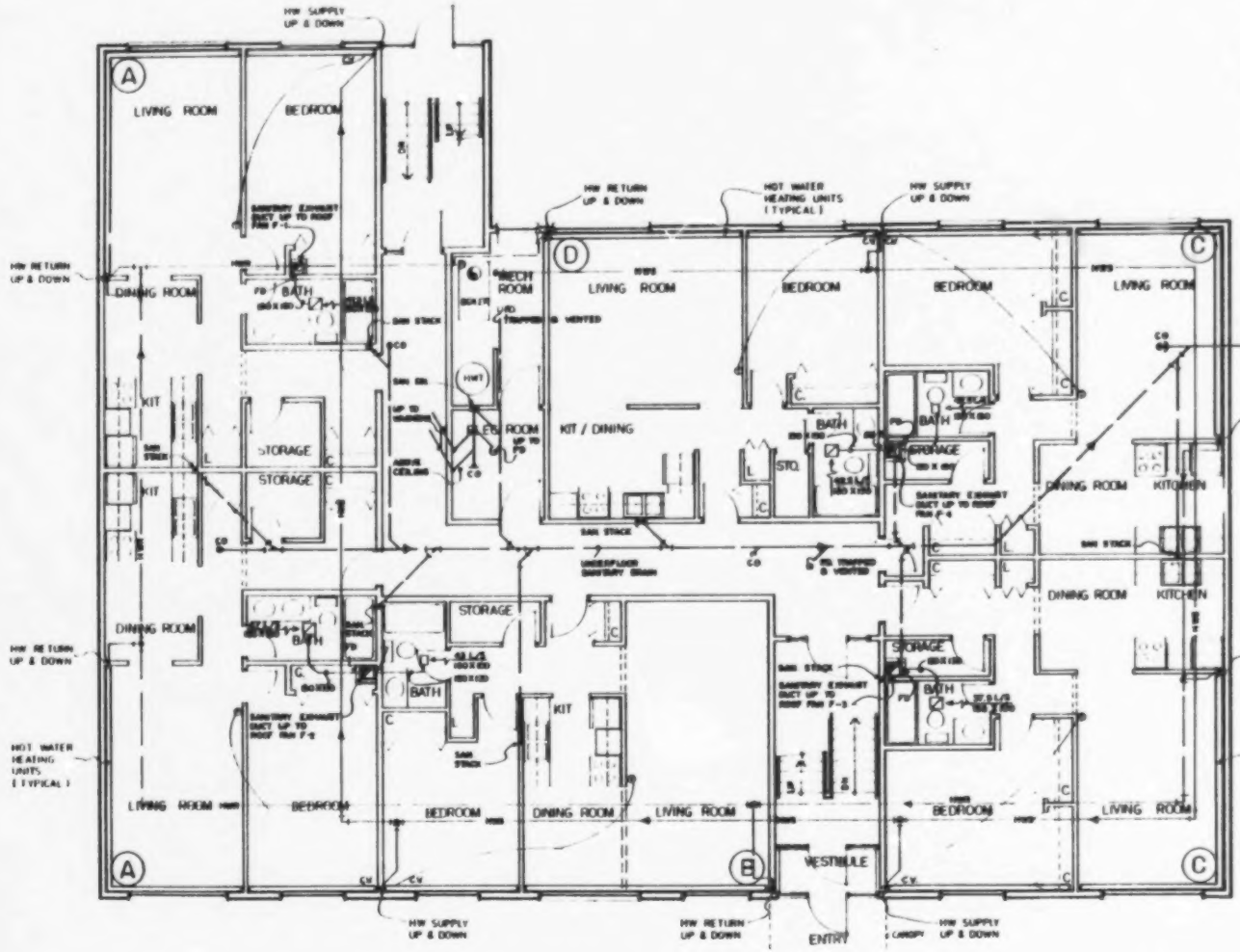
NOTES

1. PROVIDE GALVANIZED STEEL, GA. 26mm AT THE HEAD OF ALL EXTERIOR OPENINGS.
2. WEEPING TILES SHALL BE LAID OF JOINT TOPPED OF WELL COMPACTED SOIL SO THAT THE TOP OF THE WEEPING TILE IS BELOW THE UNDERSIDE OF THE FLOOR SLAB.
3. ROOF TRUSSES SHALL BE DESIGNED IN CONFORMANCE WITH PART 4 AND FOR THE APPROPRIATE CATEGORY SNOW LOADS LISTED IN TABLE 2.4.1.B. (CORDATA A: 51 CMS)

ALBERTA HOUSE COST COMPARISON STUDY

SECTION & DETAILS

SCALES : AS SHOWN



ALBERTA HOUSE COST COMPARISON STUDY

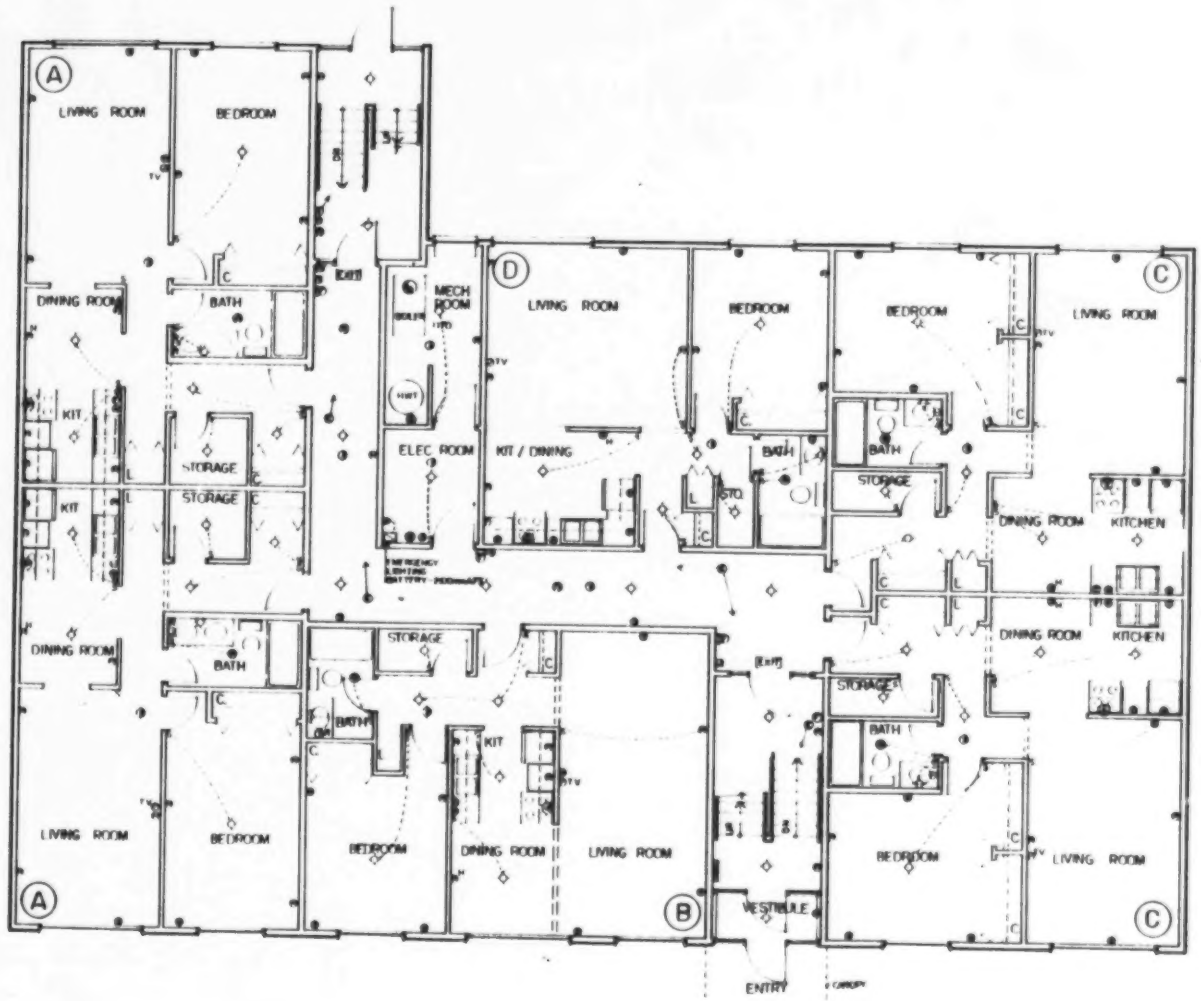
BASEMENT FLOOR PLAN
MECHANICAL LAYOUT
SCALE 1:50

ALBERTA HOUSE COST COMPARISON STUDY

MAIN FLOOR PLAN
MECHANICAL LAYOUT
SCALE 1/8"

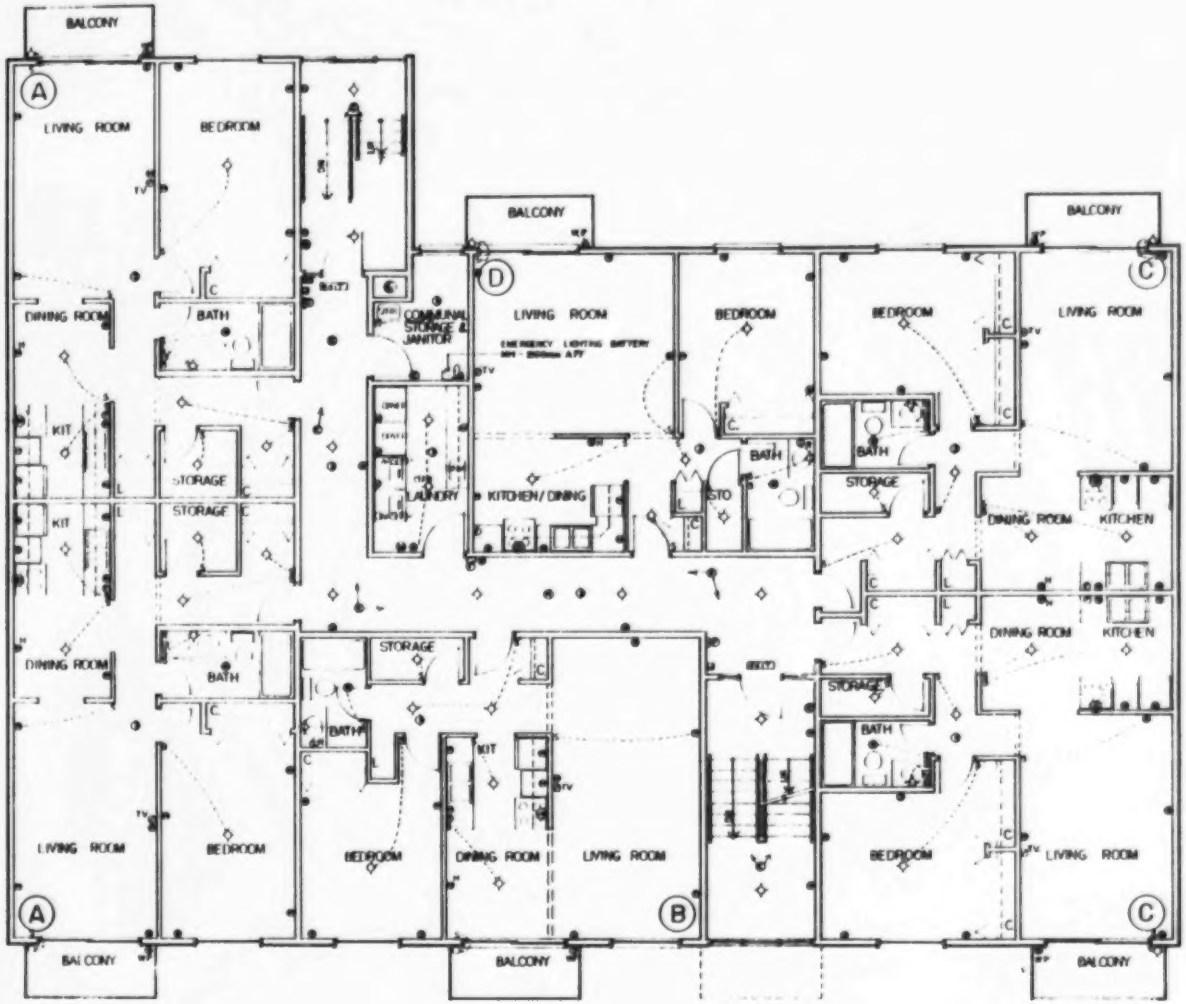
ALBERTA HOUSE COST COMPARISON STUDY

2ND & 3RD FLOOR PLAN
MECHANICAL LAYOUT
SCALE 1:50



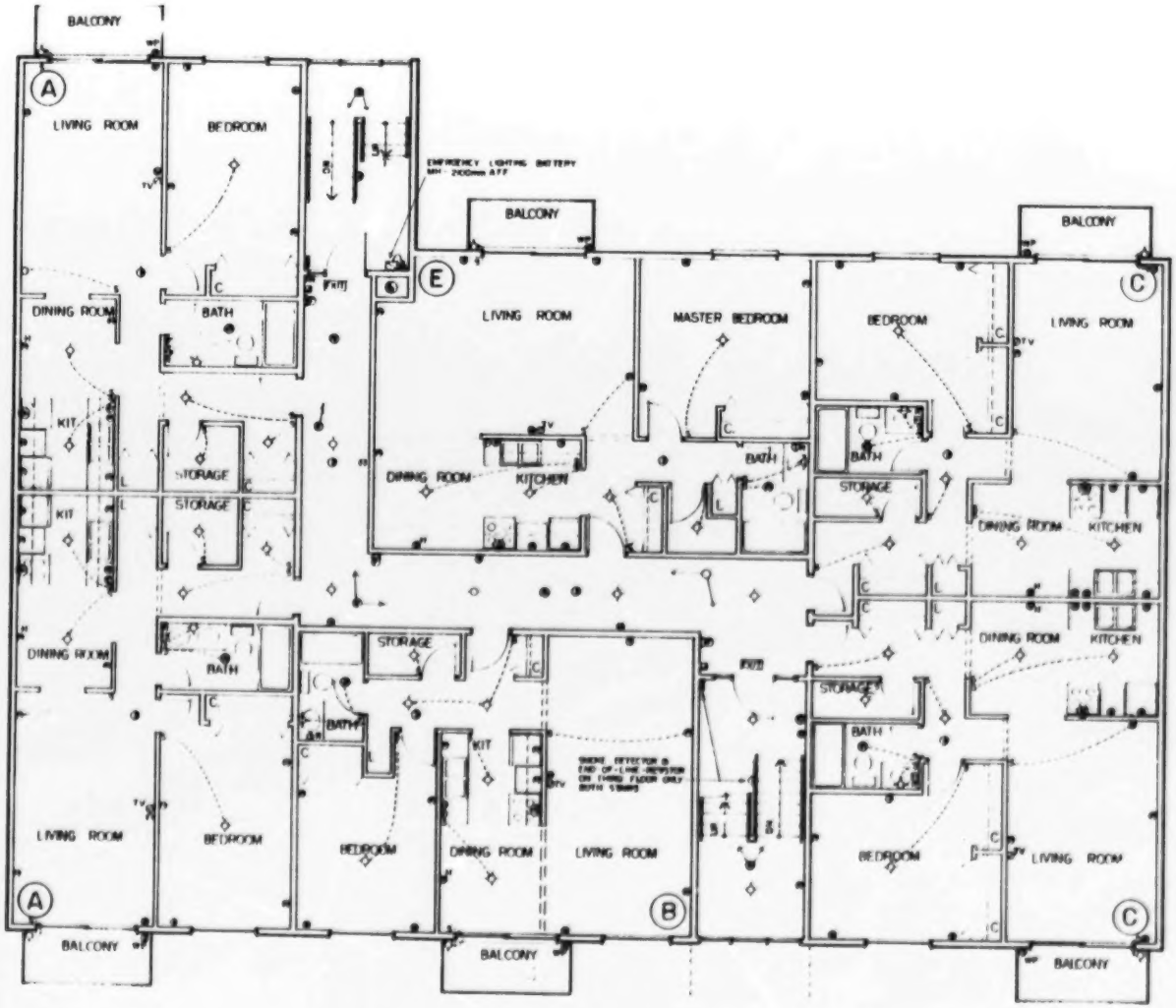
ALBERTA HOUSE COST COMPARISON STUDY

BASEMENT FLOOR PLAN
ELECTRICAL LAYOUT



ALBERTA HOUSE COST COMPARISON STUDY

MAIN FLOOR PLAN
ELECTRICAL LAYOUT
SCALE 1:50



ALBERTA HOUSE COST COMPARISON STUDY

2ND & 3RD FLOOR PLAN
ELECTRICAL LAYOUT